

**Transformational Leadership Effectiveness Through the Lens of  
Self-Determination Theory:  
The Role of Employee Needs Satisfaction**

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Za moju majku.

Hvala Milena.



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## Summary

Transformational leadership has been the most frequently investigated leadership theory over the last twenty years. Based on this accumulated research evidence, there is now little controversy that transformational leadership is one of the most effective leadership styles. While these studies have doubtlessly advanced our understanding of transformational leadership, they seem to have largely neglected a central tenet of the transformational leadership theory, namely, its integration of followers' psychological needs. Drawing on self-determination theory, the present thesis comprises four studies organized into three chapters aiming to examine the role of followers' need satisfaction in the transformation leadership process.

*Chapter 1* initiates with an investigation into whether employees' needs satisfaction mediates the relationship between transformational leadership and employees' job satisfaction, occupational self-efficacy beliefs, and affective commitment to the leader. The hypotheses were tested in Germany using a cross-sectional design (Study 1;  $N = 410$ ) and in Switzerland using a lagged design (Study 2;  $N = 442$ ). Overall, the results largely supported the hypotheses. The link between transformational leadership and employee job satisfaction was mediated by employee satisfaction of the need for autonomy (Study 1 and Study 2), competence, and relatedness (Study 2); the link between transformational leadership and occupational self-efficacy was mediated solely by competence satisfaction; the link between transformational leadership and commitment to the leader was mediated solely by relatedness satisfaction.

*Chapter 2* extends the previous research. Using an experimental design ( $N = 190$ ), it was tested whether satisfaction of followers' needs and their work engagement mediate the relationship between transformational leadership and employee performance in sequence. Overall, the results largely supported the hypotheses. Results revealed that transformational leadership induced satisfaction of the needs for competence, relatedness, and autonomy, with

the former two subsequently predicting followers' work engagement. Work engagement, in turn, led to greater performance quality and greater task persistence.

*Chapter 3* investigated whether leader and employee gender and the gender composition of the leader–follower dyad interact with transformational leadership behaviors regarding employees' needs satisfaction ( $N = 1226$ ). In particular, it was hypothesized that a) male transformational leaders would have a stronger impact on employee needs satisfaction than female transformational leaders, b) female employees who work with a transformational leader would feel more competent, autonomous, and related to compared to their male counterparts, and c) transformational leadership behaviors would have the greatest impact on employee needs satisfaction in same-gender dyads. Results did not support any of the proposed interactions. However, they showed that female employees working with a female leader reported the greatest levels of autonomy and relatedness satisfaction, and that the relevance of employee gender disappeared when transformational leadership was considered. Further, the results indicated that leaders, who are seen as transformational, regardless of their and their employees' gender, effectively influence followers in their needs fulfillment.

## Introduction

Leadership has been identified as a key situational workplace factor that has a substantial impact on employees' attitudes and performance (Yukl, 2010). Hence, an aim of leadership research is to determine effective leadership styles and to understand why these styles elicit desirable outcomes (Brodbeck, Maier, & Frey, 2002). The greater our knowledge of the mechanisms behind leader effectiveness, the further we can go beyond mere description, that is, we are then able to explain causality and processes more precisely (Preacher & Hayes, 2008). We can thus develop and implement appropriate leadership trainings in order to help individuals in leadership positions to enhance their effectiveness, for the good of the company and the employees.

One leadership style that has attracted great research attention is transformational leadership. According to Avolio (2007), transformational leadership has been the most frequently investigated leadership theory over the last twenty years. Positive effects of transformational leadership on various outcomes, such as followers' job satisfaction, organisational commitment, self-efficacy, and performance (e.g., Bono & Judge, 2003; Brown & May, 2012; Kark, Shamir, & Chen, 2003; Walumbwa & Hartnell, 2011; for a meta-analytic review see Judge & Piccolo, 2004) have been well-documented at individual, dyadic, group, and organizational levels (Jung, Yammarino, & Lee, 2009). Based on this accumulated research evidence, there is now little controversy that transformational leadership is one of the most effective leadership styles.

One characteristic that differentiates transformational leadership from other leadership approaches is its integration of followers' psychological needs. As Burns (1978), the pioneer behind the transformational leadership theory, stated "the essence of the leaders' power is [...] the extent to which they can satisfy—or appear to satisfy—specific *needs* of the followers" (p. 295; emphasis in original). Further, in distinguishing between transactional and

transformational leadership, he defined the transformational leader as a person who “seeks to satisfy higher needs and engages the full potential of the follower” (p. 4). In a similar vein, Bass (1985) stated that transformational leaders motivate their followers to put more effort into their work and, in turn, to perform beyond expectations, by involving their followers’ needs. Aptly summarizing these views, Bono and Judge (2003) noted that “in contrast to rational or “transactional” approaches to leadership, transformational [...] theories have been framed to recognize the affective and emotional needs and responses of followers” (p. 295).

Several studies have been devoted to the underlying mechanisms of transformational leadership, focusing on variables such as social identification, (e.g., Kark et al., 2003; Walumbwa, Avolio, & Zhu, 2008), trust (e.g., Jung & Avolio, 2000; Pillai, Schriesheim, & Williams, 1999), perceived job characteristics (e.g., Arnold, Turner, Barling, Kelloway, & McKee, 2007; Piccolo & Colquitt, 2006), or value congruence (Brown & Treviño, 2006), to name just a few. Doubtlessly, these studies have advanced our understanding of transformational leadership processes. However, they seem to have overlooked a central tenet of the transformational leadership theory; namely, that in order to explain leadership effectiveness, transformational leadership theory focuses primarily on followers’ psychological needs (Bass, 1985; Burns, 1978). The aim of the present thesis is to close this fundamental research gap. For this purpose, I will draw on the framework of self-determination theory (Deci & Ryan, 2000), which stresses the importance of psychological needs (i.e., competence, autonomy, and relatedness) for an individual’s well-being, satisfaction, and optimal performance—typically presumed direct outcomes of transformational leadership. More precisely, the present thesis investigates whether the transformational leader influences employees’ performance and work-related attitudes through their needs fulfillment, and whether there are contextual factors which can enhance or weaken a leader’s impact on employees’ need satisfaction.

In the following section, I will first provide an overview of transformational leadership theory (Bass, 1985; Burns, 1978) and self-determination theory (Deci & Ryan, 2000), illustrating why self-determination theory provides a powerful approach for examining the extraordinary effectiveness of transformational leaders. Next, I will highlight the specific aims and research questions of the present thesis and briefly describe how they were investigated in four independent empirical studies. The subsequent three chapters (*Chapters 1 to 3*) contain the manuscripts of the four conducted studies. Finally, the concluding *General Discussion* encompasses a summary of the conducted studies as well as their major findings, main conclusions, and the implications that may be derived from the conducted research.

### **Transformational Leadership Theory**

Leadership research is abundant and diverse. Since the pioneering research programs at Ohio State University and the University of Michigan during the 1950s, a great number of leadership theories have evolved. Yukl (2010) classified the theories into four approaches according to the type of variable that was emphasized the most for explaining leader effectiveness. The *trait approach* assumes that some people are natural leaders who possess certain criteria that other people do not have. The *behavioral approach* tries to find out what leaders actually do and to identify effective leadership behavior. The *power–influence approach* examines the amount and type of leader power and how power is exercised. Finally, the *situational approach* emphasizes the importance of contextual factors that influence leadership effectiveness. One particular theory has evoked great interest. According to Judge and Piccolo (2004), more research has been conducted on this than on all the other major theories of leadership combined. This particular theory is the theory of transformational leadership.

Transformational leadership was first introduced by Burns (1978), who characterized transformational leaders as leaders who offer long-term goals, focus on intrinsic needs, and

transform their followers such that they are motivated to go beyond their self-interest and to engage themselves for the good of the group to which they belong. Based on Burns' (1978) theorizing, Bass (1985) elaborated considerably on behaviors that constitute transformational leaders. He defined four dimensions of transformational leadership: idealized influence, inspirational motivation, intellectual stimulation, and individual consideration. *Idealized influence* refers to appealing to values, acting as a role model for followers, and communicating high expectations to followers. *Inspirational motivation* refers to the articulation of an appealing and inspiring vision, providing meaning for the task at the hand, communicating optimism about future goal attainment, offering challenges for followers, and expressing confidence in followers' ability. *Intellectual stimulation* refers to the degree to which the leader challenges assumptions and values, encourages followers to think critically using new ways, while tolerating mistakes and soliciting followers' ideas without judgment. *Individual consideration* refers to the degree to which the leader treats each follower as an individual, listens attentively, pays attention to each follower's needs, coaches, teaches, and provides each follower with continuous feedback, in an attempt to fully develop each follower's personal potential.

As demonstrated in a great number of studies, these behaviors influence a wide range of organizational outcomes. For example, job satisfaction, organizational commitment, turnover intentions, organizational citizenship behavior (OCB), organizational innovation, objective performance, and followers' well-being, to name just a few (e.g., Brown & May, 2012; Dvir, Eden, Avolio, & Shamir, 2002; Eisenbeiss, van Knippenberg, & Boerner, 2008; Hamstra, Yperen, Wissen, & Sassenberg, 2011; Nielsen, Randall, Yarker, & Brenner, 2008; Piccolo & Colquitt, 2006; Yang, 2012). Further, transformational leadership effectiveness was supported at different organizational levels (e.g., individual, dyadic, group; Jung et al., 2009) and in various countries, such as the USA, China, Canada, India, Kenya, and Korea

(for a review see Judge, Woolf, Hurst, & Livingston, 2006).

Transformational leadership is often contrasted with transactional approaches to leadership. Burns (1978) characterized transactional leaders as leaders who focus on the exchange of resources, i.e., transactional leaders offer followers something that followers want in exchange for something that they (i.e., the leaders) want. Bass (1985) defined three dimensions of transactional leadership: *contingent reward* (i.e., making clear what followers can expect when meeting expectations), *management by exceptions active* (i.e., active control of followers' work), and *management by exceptions passive* (i.e., interventions when mistakes have already been made). Hence, while transformational leadership emphasizes followers' higher order needs, transactional leadership focuses on the exchange of tangibles.

Both theories have been integrated into the "Full Range of Leadership" model (Avolio & Bass, 1991), to which a third leadership style—the laissez-faire leadership, representing non-leadership (i.e., avoidance or absence of leadership)—was also added. According to the Full Range of Leadership model, transformational leadership represents the most active and effective leadership style, followed by transactional leadership, while laissez-faire leadership represents the most passive and ineffective leadership form. Moreover, Bass (1998) hypothesized the *augmentation effect*, which stipulates that transformational leadership influences employees' outcomes *over* and *above* the transactional. Indeed, a meta-analysis by Judge and Piccolo (2004) demonstrated the augmentation effect on employees' satisfaction and motivation, and a study by Rowold and Heinitz (2007) recently supported the augmentation effect on objective performance as well. Hence, transformational leadership behavior may be seen as one of the most effective. Consequently, it is of great importance to understand through which psychological mechanisms transformational leaders influence their followers. In line with calls for more research that links transformational leadership to established theoretical frameworks instead of continually generating individual mediator

variables (e.g., Judge et al. 2006), the present thesis offers the framework of the self-determination theory (Deci & Ryan, 2000) for deeper understanding of transformational leadership effectiveness.

### **Self-Determination Theory**

The starting point of the self-determination theory (SDT; Deci & Ryan, 2000) is the assumption that motivation towards growth, development and integrity is inherently rooted in humans. However, assuming that growth and development happens automatically due to their innate nature would be a mistake. On the contrary, SDT postulates that fundamental nutriments—namely, satisfaction of *innate basic psychological needs*—are required for ongoing growth. Only when these needs are satisfied well-being and optimal functioning can occur.

The concept of needs has a long history in motivation psychology. Murray (1938) defined needs as learned motives at a psychological level. Hull (1943), in contrast, defined them as innate organismic necessities at the physiological level. In SDT, needs are conceptualized as fundamental and universal organismic necessities at the psychological level. Thus, SDT stands in line with and in contrast to the Hullian and the Murray tradition at the same time.

According to Deci and Ryan (2000), there are three basic psychological needs that refer to life-long innate tendencies toward achieving coherence, effectiveness, and connectedness: *need for autonomy*, *need for competence*, and *need for relatedness*. Need for autonomy refers to being able to self-organize one's behavior by involving a sense of choice and volition and a feeling of not being controlled by forces alien to the self (Deci & Ryan, 2000). Need for competence concerns feelings of being capable of mastering new skills and the environment and feelings of being effective, i.e., being able to achieve desired outcomes (White, 1959). Need for relatedness refers to a feeling of connectedness and association,



involving a sense of being significant to others and belonging within one's community (Baumeister & Leary, 1995).

Specific to SDT is its focus on *needs satisfaction* rather than on *needs strength*. While McClelland (1985), a prominent theorist in Murray's tradition, has postulated individual differences in needs strength as being predictive for differences in affective and behavioral outcomes, Deci and Ryan (2000) propose that differences in *opportunities* to satisfy psychological needs are responsible for differences in individual outcomes (e.g., well-being). Put differently, how highly a person values a need is not considered important in SDT, but rather whether the person has the possibility of satisfying it. Hence, if an employee values the need for competence very highly, we cannot know whether that employee is satisfied with his or her job unless we know whether they have the opportunity to satisfy their need for competence at work. In SDT, one's social environment (e.g., parents, teachers, peers, leaders) is the key factor for needs satisfaction, and thus for growth and development. Regarding satisfaction of the need for autonomy, a study by Deci, Eghrari, Patrick, and Leone (1994) revealed three crucial social-contextual factors: the possibility to make personal choices, providing a meaningful rationale for the given task or request, and acknowledgment of one's feelings, i.e., taking one's perspective into account. Regarding the satisfaction of the need for competence, SDT emphasizes as crucial factors optimal challenges, encouragement and confidence, timely and constructive feedback, and opportunities to develop capabilities. Finally, as demonstrated by Sheldon and Filak (2008), social-contextual factors beneficial to one's satisfaction of the need for relatedness are the experience of acknowledgment, caring, and interest in one's thoughts and feelings.

It is important to highlight that, besides the basic needs framework, SDT also comprises three additional propositions or sub-theories. As Ryan and Deci (2008) pointed out, SDT has successively developed into a group of theories, each of which focuses on a

different set of phenomena. Besides the basic needs framework, SDT also comprises the *organismic integration theory* (OIT), *cognitive evaluation theory* (CET), and *causality orientation theory* (COT). OIT is concerned with how people internalize and integrate non-intrinsically motivated goals, CET focuses on the factors that increase and decrease intrinsic motivation, and COT refers to individual differences in motivational orientation. However, basic psychological needs theory is the core of the SDT, since need satisfaction is essential for intrinsic motivation (Ryan & Deci, 2008), which is the phenomenon all the other sub-theories fundamentally deal with.

As predicted by the SDT, a vast amount of research has demonstrated that the degree of satisfaction of the needs for autonomy, competence, and relatedness predicts optimal functioning and well-being across various life domains. For example, a great number of studies have shown that the greater a student's need satisfaction is, the greater his or her intrinsic motivation, performance, persistence, and well-being (e.g., Black & Deci, 2000; Ratelle, Larose, Guay, & Senécal, 2005; Vallerand, Fortier, & Guay, 1997). Further domains where the importance of need satisfaction was often demonstrated are health care, sports, relationships, politics, environment, and counseling (for a review see Ryan & Deci, 2008). Moreover, in support of SDT's claim on the universality of the three needs, needs satisfaction was shown to be of equal importance in collectivist as well as in individualistic cultures. For example, Chirkov, Ryan, Kim, and Kaplan (2003) demonstrated that satisfaction of the need for autonomy was of the same importance for well-being in South Korea, Russia, Turkey, and the United States. Further, it was shown that satisfaction of all three needs is crucial for events to be experienced as satisfying in both United States and South Korea (Sheldon, Elliot, Kim, & Kasser, 2001).

In recent years, the role of need satisfaction has been increasingly investigated within the working context. Studies dealing with this issue have revealed that employee need

satisfaction is related to various outcomes such as job satisfaction, well-being, organizational commitment, performance, persistence, work engagement, and acceptance of organizational change (Baard, Deci, & Ryan, 2004; Deci et al., 2001; Gagné, Koestner, & Zuckerman, 2000; Ilardi, Leone, Kasser, & Ryan, 1993; Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010). Further, it has been shown that need satisfaction can prevent burnout and deviant behavior at work (Lian, Ferris, & Brown, 2012; Van den Broeck et al., 2010). Providing evidence for the universality of needs within the working environment, Deci et al. (2001) demonstrated that need satisfaction was equally important for work motivation in U.S. and Bulgarian work organizations.

Due to the great empirical support of the SDT's framework of need satisfaction across a wide range of settings and in explaining work attitudes and behavior, I believe that SDT's basic psychological needs theory provides a powerful approach in examining a key assumption of transformational leadership theory, that is, that the extraordinary effectiveness of transformational leaders is rooted in employees' needs involvement.

## **Chapters' Overview**

Four studies, which are organized into three chapters, were conducted in the context of the present thesis. While *Chapter 1* and *Chapter 2* are mainly concerned with employees' needs satisfaction as the underlying mechanisms of transformational leadership, *Chapter 3* is devoted to potential moderators of the relationship between transformational leadership and employee needs satisfaction. Thus, these studies should help to deepen our understanding regarding how and when transformational leadership is effective.

## **Chapter 1**

The aim of *Chapter 1* is twofold. The first aim is to establish the relationship between transformational leadership and employees' needs satisfaction. In line with the self-determination theory (SDT; Deci & Ryan, 2000), a positive relationship between

transformational leadership behaviors and employees' autonomy, competence, and relatedness need satisfaction is proposed. The second aim is to show that employees' needs satisfaction mediates the relationship between transformational leadership and employee outcomes. In particular, three employee outcomes are investigated aiming to demonstrate that different needs might be important for different outcomes. The investigated outcome variables are job satisfaction, occupational self-efficacy, and affective commitment to the leader. These outcomes have been widely examined in previous studies on transformational leadership (e.g., Bono & Judge, 2003; Kark et al., 2003; Walumbwa et al., 2008) which have shown that these outcomes are of central importance for organizational practice. As meta-analytic reviews have demonstrated, they are strongly related to work-related performance (e.g., Stajkovic & Luthans, 1998) as well as to employee well-being (e.g., Faragher, Cass, & Cooper, 2005).

Job satisfaction is widely seen as an attitudinal variable reflecting how people feel about their job, i.e., job satisfaction is a positive or negative judgment a person makes about different aspects of his or her job (Spector, 1997; Weiss, 2002). As a general appraisal of job experiences, job satisfaction is influenced by a variety of variables including diversity of tasks, autonomy in goal setting, and quality of interpersonal interactions at work (Brief & Weiss, 2002).

Occupational self-efficacy refers to beliefs and convictions regarding one's ability to actively cope with work demands (Schyns & von Collani, 2002). Occupational self-efficacy is a specification of the general self-efficacy, which was introduced by Bandura (1977) as the belief in one's capabilities to successfully execute the behavior required to produce a given outcome. According to Bandura, four main sources are used by individuals when forming self-efficacy judgments: a) performance accomplishments, which refer to past experiences with a given task, b) vicarious experiences, which refer to observing others perform a given

task, c) verbal persuasion, which refers to being persuaded into believing that one is capable successfully coping with a given task, and d) emotional arousal, which refers to emotional reactions to a given task.

Finally, affective commitment reflects an individual's emotional attachment and identification to a certain person, group, or organization (Allen & Meyer, 1990). Thus, there are multiple foci of commitment which can be distinguished (Becker, 1992). As indicated by several studies, affective commitment to the supervisor is more important than commitment to the organization in terms of employee work-related outcomes (e.g., Vandenberghe, Bentein, & Stinglhamber, 2004). For this reason, the former was incorporated in the study. According to Stinglhamber and Vandenberghe (2003), leaders evoke affective commitment of their employees by taking care for their well-being and appreciating their contribution.

Incorporating transformational leadership theory and SDT, and in addition to the first hypothesis, I propose that a) autonomy, competence, and relatedness need satisfaction will mediate the relationship between transformational leadership and job satisfaction, b) competence need satisfaction will mediate the relationship between transformational leadership and occupational self-efficacy beliefs, and c) relatedness need satisfaction will mediate the relationship between transformational leadership and affective commitment to the leader.

The hypotheses were tested in two studies. The first study was conducted in Germany using a cross-sectional design ( $N = 410$ ). The second study was conducted in Switzerland using a lagged design (i.e., transformational leadership was measured four weeks before the measurement of employee outcomes;  $N = 442$ ). These studies are the first to test a key assumption of the transformational leadership theory, that is, that employees' needs satisfaction is an important underlying mechanism of this leadership style.

## Chapter 2

The aim of *Chapter 2* is threefold. The first aim is to demonstrate that need satisfaction mediates the relationship between transformational leadership and objective followers' performance. Thus, *Chapter 2* extends the previous research in which only self-reported measures were applied. Although self-reported measures are widely used in organizational research as a proxy for leader effectiveness, it is of great importance to test whether needs satisfaction also applies to objective criteria as an underlying mechanism. The second aim is to establish the proposed causality between transformational leadership, basic needs satisfaction, and followers' outcomes. Thus, I applied an experimental design complementing to the two previous correlational field studies. Finally, *Chapter 2* aims to extend the theoretical model following Walumbwa and Hartnell (2011), who criticized that most studies on transformational leadership processes have largely neglected the possibility of sequential mediation. Building on the self-determination literature, I examined work engagement as a second, sequential mediator of the transformational leadership–followers' performance relationship.

Work engagement was introduced first by Schaufeli, Salanova, González-Romá, and Bakker (2002) as an active, positive, work-related psychological state characterized by *vigor*, *dedication*, and *absorption*. Vigor refers to high levels of energy while working, a willingness to put effort in one's work, and a high persistence when facing difficulties. Dedication refers to enthusiasm, inspiration, a strong psychological identification with one's work, and a sense of being significant. Finally, absorption refers to being fully concentrated and happily engrossed in one's work. As Salanova and Schaufeli (2008) noted, work engagement can be seen a key indicator of intrinsic motivation in the workplace.

In sum, building on previous research that has linked transformational leadership, need satisfaction, and work engagement to each other (Kovjanic, Schuh, Jonas, Van

Quaquebeke, & van Dick, 2012; Tims, Bakker, & Xanthopoulou, 2011; Van den Broeck et al., 2010), and to followers' performance (e.g., Bakker & Bal, 2010; Gagné & Deci, 2005; Walumbwa & Hartnell, 2011), I postulate that transformational leadership will indirectly influence follower performance through followers' needs satisfaction and, in turn, work engagement.

The hypothesized model was tested on a sample of 190 individuals who were randomly assigned to experiment conditions (i.e., transformational vs. non-transformational leadership). This study is the first to integrate and extend recent insights on transformational leadership, basic needs satisfaction, and work engagement.

### **Chapter 3**

The aim of *Chapter 3* is to investigate whether there are circumstances in which transformational leadership has a stronger or weaker impact on employees' needs satisfaction and thus, to broaden our understanding of that relationship. In particular, I consider the question whether leader and employee gender, and the gender composition of the leader–follower dyad interact with transformational leadership behaviors regarding employees' sense of competence, autonomy, and relatedness. As suggested by three prior studies (Ayman, Korabik, & Morris, 2009; Douglas, 2012; Reuvers, van Engen, Vinkenbunrg, & Wilson-Evered, 2008), gender plays an important role when it comes to leader effectiveness. As these studies have demonstrated, transformational leaders who are female are perceived as less effective compared to their male counterparts (Douglas, 2012; Reuvers et al., 2008), especially by their male followers (Ayman et al., 2009; Douglas, 2012). Thus, these studies indicate a male advantage in transformational leadership. Building on gender stereotype research in general and on the role congruity theory (Eagly & Karau, 2002) in particular, I hypothesize that male transformational leaders will have a stronger impact on employee needs satisfaction than female transformational leaders.

Regarding employee gender, I build on implicit leadership theory (Lord & Maher, 1991) and research on gender differences in values and need satisfaction. As the literature suggested, transformational leadership may better represent female conceptions of a desirable leadership style. Hence, I hypothesize that female employees who work with a transformational leader will feel more competent, autonomous, and related to compared to their male counterparts. Finally, regarding the gender composition of the leader–follower dyad, I follow the similarity–attraction paradigm (Byrne, 1971) and LMX theory (Graen & Uhl-Bien, 1995). Accordingly, I hypothesize that transformational leadership behaviors will have the greatest impact on employee needs satisfaction in same-gender dyads.

The assumptions were tested on a sample of 1226 employees working in various branches. This is the first study to test whether leader and employee gender are crucial factors for transformational leaders in regard to their influence on followers' needs satisfaction. Thus, it is the first study to investigate work-related measures other than leader performance evaluations with respect to gender.



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## Chapter 1

### **How Do Transformational Leaders Foster Positive Employee Outcomes? A Self-Determination Based Analysis of Employees' Needs as Mediating Links**

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### **Abstract**

Although followers' needs are a central aspect of transformational leadership theory, little is known about their role as mediating mechanisms for this leadership style. The present research thus seeks to integrate and extend theorizing on transformational leadership and self-determination. In particular, we propose that the satisfaction of followers' basic needs (autonomy, competence, and relatedness) mediates the relationship between transformational leadership and employee outcomes (job satisfaction, self-efficacy, and commitment to the leader). We tested this model in two studies involving employees from a broad spectrum of organizations in Germany ( $N = 410$ ) and Switzerland ( $N = 442$ ). Results revealed largely consistent patterns across both studies. The link between transformational leadership and occupational self-efficacy was mediated solely by need for competence fulfillment; the link between transformational leadership and commitment to the leader was mediated solely by need for relatedness fulfillment. The mediating pattern for the link between transformational leadership and job satisfaction varied slightly across studies. In Study 1, only need for autonomy fulfillment was a significant mediator, while in Study 2, all three needs mediated this relationship. Taken together, our study integrates theorizing on transformational leadership and self-determination by corroborating that need fulfillment indeed is a central mechanism behind transformational leadership.

*Keywords:* transformational leadership, self-determination theory, basic psychological needs

## Introduction

Leadership is widely regarded as one of the key factors for organizational success (Yukl, 2010). One leadership theory that has attracted a vast amount of attention is transformational leadership (Bass, 1985; Burns, 1978). Since 1990, more studies have been devoted to this leadership style than to all other major theories of leadership combined (Judge & Piccolo, 2004). Based on the accumulated research evidence, there can now be little controversy that transformational leadership is related to a wide range of positive outcomes (Judge & Piccolo, 2004).

Given the evidence for its effectiveness, it appears to be an important next step in the analysis of transformational leadership to examine *why* it evokes these desirable outcomes. In doing so, previous studies have focused largely on three types of mechanisms: (a) variables related to followers' self-perception (e.g., team potency; Schaubroeck, Lam, & Cha, 2007), (b) followers' attitudes toward the leader (e.g., trust; Jung, Yammarino, & Lee, 2009), and (c) followers' perceptions of their job (e.g., meaningfulness; Arnold, Turner, Barling, Kelloway, & McKee, 2007). These studies have doubtlessly advanced our understanding of transformational leadership processes. However, they seem to have overlooked a central tenet of this theory: its focus on followers' psychological needs as a mediating process. Accordingly, several scholars have called for additional research into the mechanisms of transformational leadership (e.g., Yukl, 2010). Judge, Woolf, Hurst, and Livingston (2006) specifically have criticized that past research has focused largely on the "continued generation of individual mediator variables" and called for "more focus on integrative efforts" (p.210). By integrating two prominent theoretical accounts and, thereby, examining a multiple mediator model, the present research addresses this call.

Introducing the concept of transformational leadership, Burns (1978) stated "the essence of the leaders' power is [...] the extent to which they can satisfy—or appear to

satisfy—specific *needs* of the followers” (p. 294; emphasis in original). He defined the transformational leader as a person who “seeks to satisfy higher needs and engages the full potential of the follower” (p. 4). In a similar vein, Bass (1990) described the fulfillment of followers’ emotional needs as a central aspect of transformational leadership.

Transformational leaders go beyond social exchange and involve higher psychological needs including needs for competence and affection. By appreciating and addressing these needs, they develop the potential of their followers and foster their commitment to and effort for the collective. This, in turn, is seen as key for the effectiveness of transformational leaders (Bass, 1985; Burns, 1978). Indeed, the focus on followers’ psychological needs seems to be a central aspect that differentiates transformational leadership from transactional leadership styles (Bono & Judge, 2003). Against this background, it seems surprising that this central tenet of transformational leadership theory has not yet been empirically examined. The present study strives to address this research gap by elaborating on the links between transformational leadership, employee outcomes, and employees’ needs fulfillment as a mediator, and by providing an empirical test of these relationships.

To explore employees’ needs, we draw on self-determination theory (SDT; Deci & Ryan, 2000; Gagné & Deci, 2005 ), which can be regarded as one of the most detailed and best validated frameworks of psychological needs (Greguras & Diefendorff, 2009). SDT posits the existence of three universal needs: the needs for autonomy, for competence, and for relatedness. According to SDT, the fulfillment of these needs is essential for personal growth and optimal performance. The main source of need satisfaction is a person’s social environment. In the organizational context, leaders are regarded as the central factor in satisfying employees needs, given their influence on tasks characteristics and work design (Deci, Connell, & Ryan, 1989). By integrating transformational leadership theory and SDT, we hypothesize that basic need fulfillment mediates the link between transformational

leadership and employee outcomes. More precisely, we propose that the satisfaction of the needs for autonomy, competence, and relatedness underlies the link between transformational leadership and followers' job satisfaction, self-efficacy, and affective commitment to the leader.

We chose these outcome variables because they have been frequently studied in the literature on transformational leadership, and they have been found to be significantly related to this leadership style (e.g., Bono & Judge, 2003; Kark, Shamir, & Chen, 2003; Walumbwa, Avolio, & Zhu, 2008). Further, they represent three different classes of dependent variables: employees' attitudes towards work (job satisfaction; Brief & Weiss, 2002), performance-related measures (self-efficacy; Stajkovic & Luthans, 1998), and relationship-based variables (affective commitment to the leader; Becker, Billings, Eveleth, & Gilbert, 1996). This enabled us to examine an important issue, that is, whether basic psychological needs *differentially* mediate the links between transformational leadership and different types of outcomes. Moreover, these outcomes are of central importance to organizational practice—to both management and employees. As meta-analytic reviews demonstrate, they are strongly linked to work-related performance, which tends to be of primary interest from a management perspective (Stajkovic & Luthans, 1998). But beyond that, they are also associated with employee health, which is a central outcome variable from an employees' point of view (Faragher, Cass, & Cooper, 2005). Finally, it is important to note that all concepts and relationships of the present study were examined at the individual level of analysis. This approach is in line with recent work on cross-level analyses of leadership which found that transformational leadership operates at the individual level of analysis rather than at the dyadic or group level (Jung et al., 2009).

The present research seeks to make two important contributions. First, by examining the fulfillment of basic psychological needs as a mechanism for leadership influence, it tests a

central assumption of transformational leadership theory. Second, the study examines the differential effects of basic psychological needs in linking transformational leadership to different kinds of outcome variables. We believe that this analysis may provide valuable insights into why this leadership style can be linked to such a wide variety of desirable employee outcomes. Additionally, this investigation may contribute to the theory development of SDT which, in its current form, does not make outcome-specific predictions of need satisfaction (Sheldon & Filak, 2008).

### **Linking Transformational Leadership to Need Satisfaction**

Transformational leadership has been conceptualized as comprising four dimensions (Bass, 1985): idealized influence (i.e., engaging in charismatic role modeling which earns the admiration of followers; articulating high expectations about the group's mission and goals), inspirational motivation (i.e., providing a vision and meaning to followers; demonstrating optimism and confidence that goals can be achieved), intellectual stimulation (i.e., encouraging followers to challenge existing approaches and assumptions; reframing problems to find new solutions), and individual consideration (i.e., considering followers' individual needs, strengths and aspirations; developing their capabilities). As noted earlier, there is considerable evidence for the effectiveness of transformational leaders. We believe that SDT provides a highly valuable framework to understand the underlying processes behind this effectiveness.

Self-determination theory is a motivational framework which rests on the assumption that individuals possess an innate desire for personal growth (Deci & Ryan, 2000). The theory posits the fulfillment of three basic psychological needs as an essential prerequisite for human thriving and development: needs for autonomy, competence, and relatedness.

*Autonomy* refers to being able to self-organize one's behavior. It involves a sense of choice and a feeling of not being controlled by forces alien to the self. *Competence* concerns feelings

of mastery and effectiveness, which originate from opportunities to apply and expand one's capabilities. *Relatedness* refers to a feeling of connectedness and association and involves a sense of being significant to others. Past research has demonstrated that the satisfaction of these psychological needs is related to a wide range of positive outcomes including performance, self-esteem, and organizational commitment (Gagné & Deci, 2005). Contrary to other need theories that focus on stable *individual differences* in need strength, SDT rather proposes differences in *opportunities* to satisfy needs. Thus, SDT provides a well-elaborated framework of need satisfaction, which, in the present context, is of primary interest.

Prior to describing the theoretical model of the present study in detail, it appears crucial to note how it differs from and extends previous work; perhaps most importantly with respect to the research by Bono and Judge (2003). First, Bono and Judge focused on self-concordance theory, a derivative of SDT, to explain the effectiveness of transformational leaders. Even though we believe that this approach significantly contributed to the understanding of transformational leadership, self-concordance is related to SDT's organismic integration model, which clearly differs from SDT's basic needs model (Ryan & Deci, 2008). In contrast to SDT's need concept, self-concordance is a conative variable measuring whether individuals perceive work-related goals as self-chosen or as externally imposed (Sheldon & Elliot, 1999). Second, Bono and Judge proposed that followers of transformational leaders would *perceive* work-related goals as set internally rather than externally. Although we think that a perception of internally set goals may address the need for autonomy, we believe that this does not fully capture how transformational leadership fulfills this need. As Deci et al. (2001, p. 931) outlined, feeling autonomous "requires experiencing choice and feeling like the initiator of one's own actions" which, we believe, goes beyond a mere *perception* of goal-consistency. As we will detail below, employee participation seems an integral part of transformational leadership (Kirkman, Chen, Farh,

Chen, & Lowe, 2009). Third, autonomy represents only one of the three needs that SDT regards as essential for well-being and optimal functioning. The theory also emphasizes the importance of relatedness and competence needs. Both of these needs are strongly related to transformational leadership behavior and seem to play an important role for its effectiveness (Walumbwa et al., 2008).

Another framework which should be discussed here is Shamir, House, and Arthur's (1993) theory of leadership effectiveness. The model proposes that transformational leaders have a profound impact on followers' self-concepts. This, in turn, should translate into desirable employee attitudes and behaviors (Shamir et al., 1993). Despite being regarded as the most detailed account of the effects of transformational leadership, the model appears rather complicated, as it suggests a large number of diverse mechanisms. Additionally, not all of the proposed mechanisms seem elaborated upon sufficiently (Yukl, 2010). Consequently, most studies building upon this model have only examined subsets of the proposed processes (mainly one or two variables); to date no study has examined all proposed links simultaneously. Against this background, it seems warranted to develop a more parsimonious model for the processes behind transformational leadership. The present research seeks to provide such a model.

### **Transformational Leadership and the Need for Autonomy**

Transformational leaders are characterized by providing followers with meaning for their work by articulating value-laden descriptions of tasks (idealized influence) and by communicating attractive goals for the future (inspirational motivation). When framing these goals, they are particularly adept at referring to universalistic values that appeal to followers (Bass, 1985). As a consequence, followers tend to perceive these goals as congruent with their own principles and thus perceive them as their own (Bono & Judge, 2003). Supporting this view, Arnold et al. (2007) found that followers of transformational leaders experience



their work as more meaningful compared to subordinates of non-transformational leaders.

However, transformational leaders do not only frame goals in a way that appeals to followers and fosters a *perception* of autonomy. They also show individual consideration for their followers' opinions and take their perspective into account when making decisions (Bass, 1985). Additionally, transformational leaders encourage their followers to develop new approaches to efficiently accomplish their work (intellectual stimulation). Hence, they offer employees freedom and autonomy in the way they are to execute and fulfill their tasks. As Kirkman et al. (2009) argued, employee participation seems an integral aspect of transformational leadership behavior.

Another central aspect for followers' autonomy lies in the absence of close control (Ryan & Deci, 2008). As opposed to transactional leaders, who continuously monitor followers' actions and sanction employees' behavior through reward and punishment, transformational leaders strive to address followers' self-motivation for the group's goals (Bass, 1985). As Shamir et al. (1993) suggested, transformational leaders link collective goals to the self of their followers, which makes followers more likely to autonomously pursue these goals.

According to SDT, these leadership behaviors directly address followers' need for autonomy. As emphasized by SDT, autonomy concerns an experience of choice and feeling like the origin of one's actions (Ryan & Deci, 2008). It is fostered by a leadership style that offers opportunities for participation, provides meaning, acknowledges followers' perspectives, and encourages self-initiation (Deci et al., 1989; Deci et al., 2001). Additionally, SDT underlines the absence of feeling externally controlled, which strongly undermines a sense of autonomy (Ryan & Deci, 2008). In summary, we expect that transformational leadership is positively related to followers' sense of autonomy.

*Hypothesis 1a:* Transformational leadership and satisfaction of followers' need for

autonomy are positively related.

### **Transformational Leadership and the Need for Competence**

When explaining leadership effectiveness, transformational leadership theory emphasizes the importance of building followers' capabilities. Transformational leaders strive to enhance their followers' knowledge, skills, and abilities by investing considerable effort into their training (individual consideration). Furthermore, it has been argued that transformational leaders provide optimal conditions for learning by providing regular and adequate feedback (Kirkpatrick & Locke, 1996) and by creating a team climate of trust and respect (Isaksen, 1983). Hence, transformational leaders can be seen as highly effective coaches.

Besides providing support for personal development, transformational leaders also build a sense of confidence among employees. As Shamir et al. (1993) pointed out, they increase employees' feelings of competence by expressing high expectations (idealized influence) and by voicing confidence that these expectations can be met (inspirational motivation). Research in the tradition of goal setting theory suggests that these are central factors enhancing followers' sense of competence (Locke & Latham, 2002).

Another way in which transformational leadership affects followers' sense of competence is role modeling (Walumbwa et al., 2008). As Bass (1985) pointed out, transformational leaders can be seen as ideal points of reference for social learning. By being optimistic about the future and showing confidence in their abilities, transformational leaders are likely to show high motivation in pursuing their goals (Bandura, 1997). Hence, transformational leaders can be regarded as confident and successful role models, who will enhance a sense of competence among their followers.

According to the basic needs framework of SDT, opportunities to express and expand one's capabilities are important factors for the need for competence (Deci & Ryan, 2000). An

environment that provides optimal challenges, adequate feedback, and a supportive climate is regarded as a central factor for need for competence fulfillment (Ryan & Deci, 2008). Hence, transformational leadership should effectively fulfill this need. In summary, we propose:

*Hypothesis 1b:* Transformational leadership and satisfaction of followers' need for competence are positively related.

### **Transformational Leadership and the Need for Relatedness**

One key characteristic of transformational leaders is the sense of relatedness they foster among employees. They do so in two ways: (1) by strengthening the attraction between leader and followers, and (2) by increasing the bond among followers (Kark et al., 2003; Walumbwa et al., 2008). First, transformational leaders emphasize morale and adhere to high ethical standards (idealized influence). Due to their conviction in the goals and purpose of the team, they engage in self-sacrificing actions and are willing to neglect their own interests for the good of the group (Avolio, 1999). These behaviors earn the respect and admiration of employees (Conger & Kanungo, 1998). In line with this view, Wang, Law, Hackett, Wang, and Chen (2005) found that transformational leadership was positively linked to dyadic relationship quality between transformational leaders and their subordinates. This, in turn, should contribute to satisfying the need for relatedness.

Second, several scholars have emphasized the importance of social identity processes for the transformational leaders' influence. Transformational leaders are particularly apt to enthuse their followers to the mission and goals of the group (inspirational motivation). They do so by emphasizing the importance of the group's goals evoking a feeling of relatedness among employees (Walumbwa et al., 2008). Additionally, they highlight past achievements of the group and positively distinguish the team and its missions from other groups (Burns, 1978). In other words, they positively affect followers' perception of the group and, therefore, social identification.

SDT posits that need for relatedness fulfillment is critically dependent on a sense of connectedness to others (Deci & Ryan, 2000). Acknowledgement and support from other people who show genuine interest in one's thoughts and interests are important satisfiers of this need (Ryan & Deci, 2008). As outlined above, transformational leaders meet these conditions by fostering the bond between leader and follower and among followers.

Therefore, we propose:

*Hypothesis 1c:* Transformational leadership and satisfaction of followers' need for relatedness are positively related.

### **Linking Need Satisfaction to Job Satisfaction, Self-Efficacy, and Affective Commitment**

#### **Need Satisfaction and Job Satisfaction**

In applying SDT to the work context, Gagné and Deci (2005) proposed that the fulfillment of basic psychological needs should contribute to employees' job satisfaction. According to SDT, situations which satisfy one or more basic psychological needs foster well-being and optimal functioning (Ryan & Deci, 2008). At work, this will contribute to a positive evaluative judgment of one's work environment. In support of this hypothesis, Lynch, Plant, and Ryan (2005) found that the fulfillment of basic psychological needs was positively related to employees' satisfaction with their job tasks. Their results also demonstrated that each of the three needs had a unique effect on job satisfaction.

This finding is fully in line with SDT. A central assumption of SDT's need concept is that all three basic needs *simultaneously* and *additively* foster positive outcomes. Indeed, SDT, in its current form, does not make differential predictions about the link between need satisfaction and outcomes (Sheldon & Filak, 2008). However, the theory maintains that the frustration of any of the three needs will result in diminished well-being (Ryan & Deci, 2008). Hence, we propose:

*Hypothesis 2a:* Autonomy need satisfaction, competence need satisfaction, and relatedness need satisfaction positively relate to followers' job satisfaction.

SDT's prediction of simultaneous and additive effects of need satisfaction on positive outcomes seems very reasonable for phenomena which are affected by a wide range of factors. For instance, job satisfaction, as a general appraisal of job experiences, is a broad construct and influenced by a variety of variables (Brief & Weiss, 2002). Conversely, other important work-related variables, such as self-efficacy or the relationship-quality between leader and follower, focus on specific aspects of organizational life and are therefore narrower in scope. These outcomes are strongly affected by more domain-specific antecedents and are less sensitive to more general factors (Bandura, 1997; Becker et al., 1996). Transferring this insight to basic need fulfillment, we suggest that basic needs needn't always to operate simultaneously in order to affect positive outcomes. Indeed for specific, narrow outcomes (e.g., self-efficacy), the satisfaction of certain needs (e.g., need for competence) appears more important than the fulfillment of others (e.g., need for relatedness). Before we elaborate on this argument in the following section, we would like to emphasize that the term "narrow" does not mean that these constructs are unimportant. On the contrary, according to Ajzen and Fishbein's (1977) principle of attitude-behavior correspondence, narrow concepts play an important role in organizational research since they seem to possess considerable power when predicting desirable employee outcomes.

### **Need Satisfaction and Self-Efficacy**

In line with SDT's proposition, past research has shown that need satisfaction is positively related to optimal performance (Gagné & Deci, 2005). An essential factor for people's performance is the belief in their abilities to succeed, that is, their self-efficacy (Stajkovic & Luthans, 1998). Self-efficacy beliefs arise from past experiences with personal mastery as a key source (Bandura, 1997). They represent learned cognitions concerning one's

expectations to accomplish specific future tasks. To determine their chances for success, individuals weigh and integrate information about their capabilities. As Bandura (1997) emphasized, emotional states are an important factor in this process. In line with this view, past research has shown that positive affect caused higher levels of self-efficacy (Kavanagh & Bower, 1985). Conversely, emotional arousal and negative affective states should diminish self-efficacy beliefs, since they signal a lack of ability (Bandura, 1977), and foster the recall of failure (Bower, 1981).

While self-efficacy theory emphasizes that feeling capable is of importance to the evaluation of one's self-efficacy, it does not refer to autonomy or to the quality of interpersonal relationships as antecedents of self-efficacy beliefs. Likewise, SDT's conceptualizations of the needs for relatedness and autonomy do not suggest a relationship with self-efficacy. Therefore, we propose:

*Hypothesis 2b:* Competence need satisfaction (but not autonomy need satisfaction and relatedness need satisfaction) positively relates to followers' self-efficacy beliefs.

### **Need Satisfaction and Affective Commitment to the Leader**

Affective commitment reflects an individual's attachment and identification to a certain group or person (Meyer, Allen, & Smith, 1993). Past research has emphasized the importance of distinguishing between multiple foci of commitment and studies have shown that commitment to the supervisor is a stronger predictor of work-related outcomes than commitment to the organization (Becker et al., 1996).

Stinglhamber and Vandenberghe (2003) argued that supervisors elicit affective commitment by taking care of employees' well-being and by appreciating their contributions. They concluded that these behaviors "increase affective commitment by fulfilling such socio-emotional needs as needs for esteem, approval and affiliation" (p. 252). In a similar vein, the group engagement model (Tyler & Blader, 2003) suggests that treatment by the supervisor is

an important antecedent of attachment. Respectful treatment indicates that a person is valuable to the group, which results in stronger attachment to the group and its supervisor. Supporting this view, past research has consistently shown that a sense of personal significance for the organization has been the strongest antecedent of affective commitment (Meyer & Allen, 1997). In summary, we propose:

*Hypothesis 2c:* Relatedness need satisfaction (but not autonomy need satisfaction and competence need satisfaction) positively relates to followers' affective commitment to their leader.

### **Linking Transformational Leadership, Need Satisfaction, and Desirable Employee Outcomes**

As noted above, numerous studies have demonstrated the link between transformational leadership and positive employee outcomes including followers' job satisfaction, self-efficacy, and affective commitment to the leader. However, no study to date has examined whether and how employees' need fulfillment may mediate these links. In line with transformational leadership theory and based on the rationale developed in the previous sections, we expect that need satisfaction may be an important constituent of transformational leadership. In linking transformational leadership and SDT, we propose that transformational leaders shape employees' attitudes and behaviors by fulfilling basic psychological needs. Specifically, we propose:

*Hypothesis 3a:* Autonomy need satisfaction, competence need satisfaction, and relatedness need satisfaction mediate the link between transformational leadership and followers' job satisfaction.

*Hypothesis 3b:* Competence need satisfaction (but not autonomy need satisfaction and relatedness need satisfaction) mediate the link between transformational leadership and followers' self-efficacy beliefs.

*Hypothesis 3c:* Relatedness need satisfaction (but not autonomy need satisfaction and competence need satisfaction) mediates the link between transformational leadership and followers' affective commitment to their leader.

### **General Method**

To test our theoretical model, we conducted two studies. In Study 1, we collected data in Germany using a cross-sectional design. In Study 2, data were collected in the German speaking part of Switzerland and a time lag between the measurement of leadership behavior and the remaining variables was induced. In both studies we employed the same measures. Further, both data sets were analyzed by applying the same statistical methods. For the sake of parsimony, we have merged their method sections, yet highlighting the sample characteristics for each study.

### **Overview of Procedure**

In order to reach a broad cross-section of the working population, participants were recruited on diverse online portals. Only participants who were employed at the time of the study and who reported having a specific leader were included in the final analyses. In Study 1, participants completed all measures in a single session. In Study 2, participants first answered demographic questions and rated transformational behavior of their leader (T1). Four weeks later (T2), they filled in questionnaires measuring need fulfillment, job satisfaction, occupational self-efficacy, and affective commitment to the leader. The link for the second survey was sent via email to each participant.

### **Measures**

**Transformational leadership.** We measured transformational leadership using Bass and Avolio's (1995) Multifactor Leadership Questionnaire (MLQ5X–Short) in the German version by Felfe (2006), which comprises 19 items measuring all facets of transformational



leadership behavior . A sample items is: “My supervisor helps me to develop my strengths” (1 = *never* to 5 = *almost always*). Consistent with previous research, we combined all facets into one single factor of transformational leadership (e.g., Bono & Judge, 2003). A series of confirmatory factor analyses (CFAs), which we report below, provided justification for this approach. Cronbach’s alpha of the scale is .96 in Study 1 and .95 in Study 2.

**Need satisfaction.** We measured need satisfaction using the Basic Needs Satisfaction in Relationship Scale by La Guardia, Ryan, Couchman, and Deci (2000). We chose this scale since we were interested in the effects of need satisfaction derived from the leader rather than in the effects of need fulfillment derived from the broader working context. The scale measures each basic need satisfaction with three items (response scale: 1 = *totally disagree* to 5 = *totally agree*). Sample items are: “In the working relationship with my direct supervisor, I have a say in what happens and I can voice my opinion” (*autonomy*), “In the working relationship with my direct supervisor I feel like a competent person” (*competence*), “In the working relationship with my direct supervisor, I often feel a large personal distance” (*relatedness*, reversely coded). In Study 1 Cronbach’s alpha for autonomy satisfaction is .82, .80 for competence satisfaction, and .86 for relatedness satisfaction; in Study 2 Cronbach’s alpha are .82, .84, and .83 respectively.

**Job satisfaction.** We measured general job satisfaction using the three-item scale of Hackman and Oldham’s (1975) Job Diagnostic Survey. A sample item is “Generally speaking, I am very satisfied with my job” (1 = *totally disagree* to 7 = *totally agree*). Cronbach’s alpha for the scale is .82 in Study 1 and .85 in Study 2.

**Occupational self-efficacy.** To measure occupational self-efficacy, we adapted Schwarzer and Jerusalem’s (1995) General Self-Efficacy Scale to fit the work context by adding the phrase “when I am at work” to each item. A sample item is: “When I am at work, I can always manage to solve difficult problems if I try hard enough” (1 = *not at all true* to 4 =

*exactly true*). Cronbach's alpha of the scale is .89 in Study 1 and .87 in Study 2.

**Affective commitment.** To assess participants' affective commitment to their leader, we used the Affective Organizational Commitment Scale from Meyer et al. (1993), replacing the expression "my organization" with "my leader". A sample item is: "My leader has a great deal of personal meaning for me" (1 = *totally disagree* to 5 = *totally agree*). Cronbach's alpha of the scale is .76 in Study 1 and .80 in Study 2.

The original language of the affective commitment scale, as well as of the job and need satisfaction measures, is English. To ensure translation equivalence, all items were translated into German and then back-translated into English by two separate bilingual persons proficient in both German and English. The comparison between the original and the back-translated versions supported the conceptual equivalence between the items.

**Control variables.** Past research has shown that employees' age, gender, and leader–follower dyadic tenure are related to affective commitment (e.g., Meyer, Stanley, Herscovitch, & Topolnysky, 2002) as well as to job satisfaction (e.g., Bellou, 2010). Thus, we controlled for these variables in both studies.

## Study 1

### Method

**Sample.** In total, data from 410 employees were analyzed. The sample comprised 64.9% ( $n = 266$ ) female employees. The average age of the participants was 36.03 years ( $SD = 11.55$ ). Thirty percent of the participants held at least an academic master degree, 37% met the general requirements for university admission or had a bachelor's degree. Participants worked in various industries. The most prominent sectors were service (11.3%), education (8.9%), and health care (7.1%). Most participants (70%) were employed at least 32 hours per week. Finally, the average tenure with the current leader was 3.65 years ( $SD = 4.07$ ).

## Results

**Validity analyses.** Given that a large number of items can be problematic in structural equation models, we used item parcels as indicators of constructs which were assessed by more than three items: indicators of transformational leadership were parceled according to its five sub-scales; indicators of occupational self-efficacy and affective commitment to the leader were parceled according to the *item-to-construct balance* technique (Little, Cunningham, Shahar, & Widaman, 2002). The CFA showed that the measurement model fits the data well ( $\chi^2/df = 1.68$ ; TLI = .98; CFI = .98; RMSEA = .04). The inspection of factor loadings showed that all indicators significantly loaded on their intended latent factor (standardized loadings ranged from .65 to .95,  $p < .001$ ). Further, no cross-loadings were observed.

In a next step, we compared the fit of our measurement model against two alternative models derived from theoretical considerations of the transformational leadership model and SDT's basic needs framework: a) an eleven-factor model, in which all five subscales of transformational leadership were considered individually and b) a five-factor model, in which all three need satisfaction scales were combined into one factor. The chi-square difference test showed that the proposed 7-factor model fitted the data significantly better than the two alternative models ( $\Delta\chi^2 (363, N = 410) = 707.19, p < .001$  and  $\Delta\chi^2 (21, N = 410) = 448.51, p < .001$  respectively). To test for divergent validity, we followed the recommendation by Kelloway (1998) and compared our measurement model with all possible models, in which each pair of constructs forms a single factor. The chi-square difference tests showed that the measurement model fitted the data significantly better than any of the alternative models.

To provide further evidence for the validity of our measures, we examined each factor's average variance extracted (AVE; i.e., the average variance explained by the items composing each scale) as suggested by Fornell and Larcker (1981). Based on this procedure,

two criteria must be met to support construct validity: a) the AVE of each scale should exceed .50, and b) the squared correlation between two scales should be lower than the AVE of each of the two scales. This latter criterion indicates divergent validity. In line with both criteria, the AVEs of all constructs exceeded .50 (AVE ranged from .64 to .79 fulfilling the first criterion), and all squared correlations between scales were lower than the AVEs of the compared scales (fulfilling the second criterion). Taken together, these analyses support the validity of the present constructs.

**Common method bias.** To examine the potential influence of common method variance in our data, we applied the CFA marker variable technique by Williams, Hartman, and Cavazotte (2010). To examine the presence of biasing effects, this procedure uses a variable that is theoretically unrelated to at least one other variable in the proposed model (i.e., a marker variable). Following this procedure, five nested CFA models must be estimated. In Model 1, all variables are allowed to correlate and all parameters are freely estimated. In Model 2, the marker variables' parameters are fixed to the values obtained from the initial CFA model and the correlations between the marker variable and all other variables are forced to zero. The third model (Method-C model) adds method factor loadings, which are constrained to be equal in size. The fourth model (Method-U model) allows the added method factor loadings to be freely estimated. The final model (Method-R model) is identical to the fourth or third model (depending on which of them provided a better fit to the data) but the correlations between the variables are constrained to their values from the baseline model. If Method-R model does not fit the data better than Method-C or Method-U model, the relationships in the model are *not* significantly biased by method variance.

In line with Williams et al.'s (2010) recommendations, we selected occupational self-efficacy as marker variable since it has the weakest relationships to other variables in the model (see Table 1). In establishing the five models, we included all variables except for

need for competence satisfaction, since it, based on our hypotheses, should be significantly linked to self-efficacy (and, therefore, may bias the results of the analysis). The results showed that the Method-R model was not superior to the Method-U model ( $\Delta\chi^2(13, N = 410) = 11.54, p = .57$ ). This indicates that the relationships between the concepts of our study were *not* significantly biased by common method variance (Williams et al., 2010). To examine whether common method variance influenced the link between need for competence satisfaction and occupational self-efficacy, we conducted a second marker analysis using affective commitment as the marker (since it shows the lowest correlation with occupational self-efficacy). This analysis also revealed that common method variance did not bias the examined relationship ( $\Delta\chi^2(1, N = 410) = 1.19, p = .17$ ).

**Descriptive statistics.** Table 1 contains the means, standard deviations, and zero-order correlations of all studied variables. In line with previous research, transformational leadership was positively related to job satisfaction ( $r = .47, p < .001$ ), occupational self-efficacy beliefs ( $r = .11, p < .05$ ), and affective commitment to the leader ( $r = .74, p < .001$ ).

### **Hypothesis Testing.**

**Hypotheses 1a-c.** In order to test Hypotheses 1a-c, we conducted partial correlations controlling for age, gender, and leader–follower dyadic tenure. In support of Hypothesis 1a-c, partial correlations showed that transformational leadership was positively associated with the satisfaction of followers’ needs for autonomy ( $r = .69, p < .001$ ; Hypothesis 1a), competence ( $r = .51, p < .001$ , Hypothesis 1b), and relatedness ( $r = .78, p < .001$ ; Hypothesis 1c).

**Hypotheses 2a-c.** In order to test Hypotheses 2a-c, we conducted multiple regression analyses for each work-related outcome. In the first step, we entered the control variables into the equation; in the second step, we entered the centered need satisfaction scores. Entering all scores of need satisfaction simultaneously allows determining the unique contributions of

each need (Preacher & Hayes, 2008). A partial support of Hypothesis 2a was found as job satisfaction was predicted by satisfaction of the need for relatedness ( $\beta = .24, p < .01$ ) and satisfaction of the need for autonomy ( $\beta = .23, p < .01$ ) but not by satisfaction of the need for competence ( $\beta = .07, p = .23$ ). In line with Hypothesis 2b, occupational self-efficacy beliefs were predicted only by satisfaction of the need for competence ( $\beta = .44, p < .001$ ). Finally, supporting Hypothesis 2c, affective commitment to the leader was predicted only by satisfaction of the need for relatedness ( $\beta = .73, p < .001$ ).

**Hypotheses 3a-c.** In order to test Hypotheses 3a-c concerning the mediation effects of needs satisfaction, we followed the procedure for multiple mediator models developed by Preacher and Hayes (2008). This procedure tests the effects for all mediators and all dependent variables simultaneously, i.e., each indirect effect is examined while controlling for all other mediators, and the effects on all dependent variables are estimated as a structural equation model (Preacher & Hayes, 2008). Further, this procedure allows examining whether the indirect effects significantly differ in size. In order to test the proposed indirect paths, we computed 90% CIs as they correspond to one-tailed  $\alpha = .05$  hypothesis tests (Preacher, Zyphur, & Zhang, 2010). Similarly, contrast tests for the different indirect paths were conducted by computing 95% CIs, which correspond to two-tailed  $\alpha = .05$  hypothesis test. Prior to testing Hypotheses 3a-c, we inspected the variance inflation factors (VIF). The highest value in our data equaled 3.8 indicating that multicollinearity did not bias our mediation analyses since the critical value is 10 (Myers, 1990).

Figure 1 presents the path weights of our mediation model. In Table 2, we report the results from the proposed indirect effects and the pairwise contrasts of these paths. Providing partial support for Hypothesis 3a, the effect of transformational leadership on job satisfaction was mediated by satisfaction of the need for autonomy ( $b = .23, SE = .11, CI = .05$  to  $.41$ ) but not by satisfaction of the need for competence ( $b = .08, SE = .06, CI = -.02$  to  $.18$ ) and

relatedness ( $b = .07$ ,  $SE = .11$ ,  $CI = -.11$  to  $.27$ ). The pairwise contrasts showed that the three indirect effects could not be distinguished in terms of their magnitude. This result suggests that all three needs are equally important for mediating the link between transformational leadership and job satisfaction. Such apparently paradox effects can occur and result from power differences among the applied tests (Preacher & Hayes, 2008). In support of Hypothesis 3b, only satisfaction of the need for competence mediated the relationship between transformational leadership and occupational self-efficacy beliefs ( $b = .12$ ,  $SE = .02$ ,  $CI = .08$  to  $.15$ ). As the pairwise contrasts showed, the indirect effect triggered by the satisfaction of the need for competence was significantly different from the indirect effect through autonomy and relatedness satisfaction. Finally, in support of Hypothesis 3c, the effect of transformational leadership on affective commitment to the leader was mediated only by satisfaction of the need for relatedness ( $b = .40$ ,  $SE = .05$ ,  $CI = .32$  to  $.49$ ). This effect was significantly different from the other two effects as indicated by the pairwise contrasts.

## Discussion

The primary goal of Study 1 was to examine whether the satisfaction of the basic needs for autonomy, competence, and relatedness mediate the relationship between transformational leadership and work-related outcomes. Furthermore, our aim was to show that these three needs are differentially related to the examined outcomes. The results largely supported our hypotheses.

However, the fact that all data were obtained from the same source at the same time may give rise to concerns of common source variance—despite the results of the CFA marker variable analysis. While potentially inflated correlations cannot explain the differential links for the need satisfaction and employee outcomes, they may pose a threat to the conclusion that transformational leadership is related to basic psychological needs in the first place. According to Podsakoff, MacKenzie, Lee, and Podsakoff (2003), one effective remedy

against common method bias is to create temporal separation of measurements. For this reason, we conducted a second study in which we induced a time lag between transformational leadership ratings and the measures of need fulfillment.

## Study 2

### Method

**Sample.** In the first part of the study (T1), 541 participants completed the survey providing demographic information and their assessment of the transformational leadership behaviors of their leader. Approximately 5 weeks later, 460 participants (85% from the original sample) responded to our email to participate in the second part of the study, which measured need fulfillment and work-related variables (T2). As noted by Podsakoff et al. (2003), it is important to choose a time lag that is neither too short nor too long (see also Ployhart & Vandenberg, 2010). If the time lag is too short, factors that can artificially inflate the relationship between variables (e.g., memory effects) may not have sufficiently vanished. Conversely, choosing an inadequately long separation increases the risks of (a) strong respondent attrition and (b) influence of contaminating factors that may mask existing links between variables (e.g., leadership development activities). Considering these effects, we felt that a five-week interval provides an optimal choice (for similar time lags see Greguras & Diefendorff, 2009). To examine whether the drop-out from T1 to T2 occurred randomly or whether it was induced by participant's characteristics (i.e., age, gender, leader–follower dyadic tenure or perceived transformational leadership behavior) we run a multiple logistic regression as recommended by Goodman and Blum (1996). The results suggested that the drop-out was random.

We had to exclude 18 participants from our analyses, as they were no longer working for the same leader or for the same company. Hence, our final sample consisted of 442 employees. The sample comprised 57.5% ( $n = 254$ ) female employees and the average age of



participants was 33.36 years ( $SD = 11.32$ ). Thirty-four percent of the participants held at least an academic master degree, 28% met the general requirements for university admission or had a bachelor's degree. As intended, participants were employed in various industries. The most prominent sectors were education (10.4%), service (10.4%), and health care (8.8%). Most participants (63%) were working at least 32 hours per week. Finally, the average tenure with the current leader was 2.54 years ( $SD = 2.20$ ).

## Results

**Validity analyses.** The CFA showed that our measurement model fitted the data well ( $\chi^2/df = 2.51$ ; TLI = .95; CFI = .96; RMSEA = .06). The inspection of factor loadings revealed that all indicators loaded significantly on their intended latent factor (standardized loadings ranged from .64 to .95,  $p < .001$ ). Further, no cross-loadings were observed. In line with Study 1, these results provide evidence for the construct validity of the measures.

To test for divergent validity of the constructs, we followed the same steps as in Study 1. First, we tested the measurement model against the two theoretically competing models. The proposed 7-factor model showed again the best fit to the data ( $\Delta\chi^2 (363, N = 410) = 783.21, p < .001$  and  $\Delta\chi^2 (21, N = 410) = 448.87, p < .001$ , respectively). Second, we compared our measurement model with all possible models, in which each pair of constructs formed a single factor. In line with Study 1, the measurement model fitted the data significantly better than each of the alternative models. Third, we followed the procedure developed by Fornell and Larcker (1981). Again, our data fulfilled both criteria of this test: a) all AVEs exceeded the threshold of .50 (AVE ranged from .67 to .74), and b) all squared correlations between scales were lower than the AVEs of the compared scales. Taken together, these analyses support the divergent validity of the present concepts.

**Common method bias.** As in Study 1, we followed the procedure by Williams et al. (2010). Again, we used self-efficacy and affective commitment as marker variables. Like in

Study 1, the Method-R models were not superior to the Method-U models indicating that common method variance did not significantly bias the relationships in our data (self-efficacy:  $\Delta\chi^2(13, N = 410) = 6.74, p = .92$ ; affective commitment  $\Delta\chi^2(1, N = 410) = .72, p = .40$ ).

**Descriptive Statistics.** Table 1 contains the means, standard deviations, and zero-order correlations of all variables in Study 2. In line with previous research, we found transformational leadership to be positively related to job satisfaction ( $r = .53, p < .001$ ), occupational self-efficacy beliefs ( $r = .21, p < .05$ ), and affective commitment to the leader ( $r = .67, p < .001$ ).

### **Hypothesis Testing.**

**Hypotheses 1a-c.** In support of Hypothesis 1a-c, partial correlations controlling for age, gender, and leader–follower dyadic tenure showed that transformational leadership was positively associated with the satisfaction of followers’ needs for autonomy ( $r = .66, p < .001$ ; Hypothesis 1a), competence ( $r = .48, p < .001$ , Hypothesis 1b), and relatedness ( $r = .71, p < .001$ ; Hypothesis 1c).

**Hypotheses 2a-c.** The results of multiple regression analyses showed that job satisfaction was predicted by satisfaction of the needs for autonomy ( $\beta = .25, p < .001$ ), competence ( $\beta = .20, p < .001$ ), and relatedness ( $\beta = .24, p < .001$ ) supporting Hypothesis 2a. Further, the results revealed that occupational self-efficacy beliefs were only predicted by the satisfaction of the need for competence ( $\beta = .54, p < .001$ ) supporting Hypothesis 2b. Finally, affective commitment to the leader was predicted by satisfaction of the need for relatedness ( $\beta = .63, p < .001$ ) and by satisfaction of the need for autonomy ( $\beta = .15, p < .01$ ).

Accounting for 40% of the variance in affective commitment, satisfaction of the need for relatedness was, as expected, the most important predictor among the needs. In accordance to our predictions, satisfaction of the need for competence was not a significant predictor of

affective commitment to the leader ( $\beta = .01, p = .89$ ). Hence, Hypothesis 2c was partly supported.

**Hypotheses 3a-c.** The VIF values showed that multicollinearity did not bias our mediation analyses (the highest value was 3.0). The results of the mediation analyses are reported in Figure 1 and Table 2. In support of Hypothesis 3a, the effect of transformational leadership on job satisfaction was mediated by the satisfaction of the need for autonomy ( $b = .21, SE = .08, CI = .08 \text{ to } .35$ ), competence ( $b = .17, SE = .05, CI = .09 \text{ to } .26$ ), and relatedness ( $b = .17, SE = .09, CI = .02 \text{ to } .31$ ). The pairwise contrasts showed that the three indirect effects could not be distinguished in terms of magnitude. This result indicates that all three needs mediated the relationship to an equal extent, accounting for unique portions of this association. In support of Hypothesis 3b, only satisfaction of the need for competence mediated the relationship between transformational leadership and occupational self-efficacy beliefs ( $b = .12, SE = .02, CI = .09 \text{ to } .16$ ). As indicated by the significant pairwise contrasts, this specific indirect effect was distinguishable from the indirect effects through autonomy and relatedness satisfaction. Finally, the effect of transformational leadership on affective commitment to the leader was mediated only by the satisfaction of the need for relatedness ( $b = .35, SE = .04, CI = .28 \text{ to } .42$ ), providing full support for Hypothesis 3c. This effect was significantly different from the other two effects as indicated by the pairwise contrasts.

## Discussion

The aim of Study 2 was to provide further evidence of our theoretical model while reducing the potential influence of common method bias. Overall, the results supported our hypotheses. Remarkably, despite the time lag we induced in Study 2, the correlations between transformational leadership and need fulfillment were consistent with Study 1. This result provides further support for the relationship we hereby advance. Additionally, the results of Study 2 were fully in line with Hypotheses 2a and 3a, which received mixed support in

Study 1.

### General Discussion

Integrating transformational leadership theory (Bass, 1985) and SDT's basic needs framework (Deci & Ryan, 2000) we proposed that the fulfillment of the needs for autonomy, competence, and relatedness differentially mediate the link between transformational leadership and desirable employee outcomes. In doing so, the study answers to calls by Judge et al. (2006) and Yukl (2010), who argued that the processes behind transformational leadership are not adequately understood and suggested that more research is needed. Two empirical studies provided support for our theoretical model. In what follows, we summarize their central findings and discuss how they relate and contribute to the literatures of transformational leadership and SDT.

As hypothesized, results revealed a strong relationship between transformational leadership and fulfillment of all three basic needs. More importantly, we found that need satisfaction played the expected mediating role in linking transformational leadership and employee outcomes. Specifically, in Study 2 we found that all three needs additively mediated the relationship between transformational leadership and job satisfaction. In a similar vein, the planned pairwise contrasts in Study 1 showed that all three needs were equally important in mediating this relationship. The links between transformational leadership and the two other outcomes (self-efficacy and affective commitment) were, across both studies, mediated by one need only (need for competence fulfillment and need for relatedness fulfillment, respectively). These results contribute to the literature on transformational leadership in two important ways. First, they support Burns' (1978) and Bass' (1985) position regarding the importance of need satisfaction in the leadership processes. Additionally, they extend this notion by shedding first light on *which* needs are affected by transformational leadership (i.e., the needs for autonomy, competence, and

relatedness). Second, these findings also may provide an explanation for why this leadership style can be linked to a *wide variety* of positive outcomes. Indeed, the present study suggests that different mediating processes are responsible for the relationship between transformational leadership and different kinds of outcome variables.

Besides the mediating effects of basic need satisfaction, we also found direct paths from leadership behavior to job satisfaction and affective commitment. These direct paths indicate partial rather than full mediation and suggest the existence of additional underlying processes. This finding appears important because it suggests that transformational leadership unfolds its effectiveness not only through intrinsically motivating processes (i.e., fulfillment of the basic psychological needs) but potentially also through extrinsically motivating influences (i.e., processes that are not reflected in basic psychological need fulfillment). We believe that this distinction indicates an interesting starting point for future research on leadership processes.

While mainly contributing to the leadership literature, the present findings may also provide valuable insights for the development of SDT – particularly with regards to the effects of need fulfillment. In Study 2, consistent with our hypotheses, satisfaction of all three basic needs was positively related to job satisfaction. In Study 1, however, we only found significant relationships for need for autonomy and need for relatedness satisfaction (but not for need for competence satisfaction). Although multicollinearity was not a problem in our data, we believe that this unexpected result might be due the substantial correlation among the need satisfaction scores, which decrease the statistical power of detecting unique effects (Field, 2009). In summary, these analyses add to SDT literature, which has mainly examined the effects of an *aggregated* measure of need fulfillment (i.e., by combining all three needs in one score; Gagné & Deci, 2005). However, it is a key assumption of SDT that the fulfillment of all three needs has *unique, additive* effects (Ryan & Deci, 2008). By linking each need

individually to job satisfaction (while controlling for the remaining two needs), the present research provided a critical test of this tenet. Given the unexpected results in Study 1, we received mixed support for this notion.

Besides this additive effect, we also examined the differential influence of need satisfaction on employee outcomes. As expected, we found differential effects on outcomes with a comparably narrow focus: Across both studies, employees' self-efficacy was predicted only by need for competence fulfillment. In a similar vein, affective commitment to the supervisor was mainly predicted by need for relatedness fulfillment. Hence, our results provide evidence for the differential effects of need fulfillment. This finding appears highly beneficial for the refinement of SDT as they provide first insights into which effects are triggered by which need.

### **Limitations and Future Research**

In noting central limitations of the present studies, we also want to point out several avenues for future research. Perhaps the primary concern about the current research relates to potential effects of common source bias. However, there are several arguments that bolster our confidence in the findings. First, the analytical procedures we applied to determine the influence of common method bias consistently suggested that common source variance did not affect the present findings. Second, we found remarkably consistent patterns of results across both studies despite the time lag we had introduced in Study 2 (see Podsakoff et al., 2003). Third, the differential relationships for the mediating processes and for the link between need fulfillment and our outcome variables cannot be accounted for by common source bias. Even though we agree that potential problems regarding common source bias should not be light-heartedly discarded, these arguments suggest they did not inflate the relationship in the present study. Nevertheless, we would like to encourage future research to test our model by using multi-source data to confirm its explanatory power.

A second limitation, the present research shares with the majority of studies on organizational behavior, is its correlational design, which does not provide direct evidence for causality. However, we believe that our theoretical rationale together with the existing theoretical and empirical literature provide a solid account for the proposed causal direction. Specifically, with regards to the leader-employee link, theory and empirical findings suggest that the predominant direction of influence in organizations follows the direction of formal power, i.e., from leaders to followers (Yukl, 2010). For the link between need fulfillment and employee outcomes, our hypotheses strictly follow SDT, which posits that need satisfaction fosters positive employee outcomes (Ryan & Deci, 2008). In support of this causal link, longitudinal research by Gagné, Chemolli, Forest, and Koestner, (2008) showed that intrinsic need satisfaction predicted changes in affective commitment; in their research, no such effect was found for the converse path.

Based on the results of the present studies, there are several other promising avenues for future research. First, it appears worthwhile to examine the effect of supervisors on employees' need fulfillment against the background of other factors. Recent work suggests that different aspects of person environment fit may play an important role for need satisfaction (Greguras & Diefendorff, 2009). Disentangling the effects of different organizational factors may provide valuable insights into their relative importance for need fulfillment. Second, as stated above, it may also be interesting to examine the interplay of intrinsically and extrinsically motivating processes for effective leadership. As our results indicate, the influence of transformational leaders may be based on both kinds of motivation. Given that extrinsic rewards and intrinsic motivation are often seen as antagonists, exploring these processes might make an important contribution to the understanding of effective leadership. Finally, one level of analysis that seems to have been underrepresented in empirical leadership research is the dyadic level. This may be due to challenges that used to

be associated with analysis at this level. However, these have been effectively addressed by recent methodological developments (Gooty & Yammarino, 2011). Consequently, applying the basic needs model to leader-follower dyads may be another fruitful area for future research (Markham, Yammarino, Murry, & Palanski, 2010).

We also want to point out several strengths of the present study. These include the diverse samples of subjects from a wide range of organizational settings, random choice of subordinates and testing our research model in two different countries. Even though Germany and Switzerland may appear very similar on first sight, cross-cultural comparisons (e.g., the Global Leadership and Organizational Behavior Effectiveness [GLOBE] project; House, Hanges, Javidan, Dorfman, & Gupta, 2004) show differences on central cultural dimensions. The strongest differences have been found on the dimensions power distance, humane orientation, and collectivism. Compared to Germany, Switzerland generally scores higher on these dimensions – although these differences are rather small compared to the overall differences between the 62 countries included in the GLOBE-study. As Studies 1 and 2 also differed in study design, we feel it may be dangerous to over-interpret the cultural influence on the differences in findings. However, given that all three cultural dimensions differentiating Switzerland and Germany seem closely linked to need for relatedness satisfaction (all of them are associated to interpersonal relationships) may suggest that Swiss employees score higher on need for relatedness satisfaction (since their work environment provides them with more opportunities to fulfill this need) and that the relationship between transformational leadership and need for relatedness satisfaction may be lower in Switzerland (because the work context already addresses this need which may weaken the additional contribution of leadership). These assumptions, indeed, were supported by the data. However, despite these differences, we feel that the central aspect of the cultural difference between Studies 1 and 2 is the remarkable consistency in the findings, which can be seen as an



encouraging sign for the generalizability of the present findings.

### **Implications for Management**

Overall, our findings suggest that job satisfaction, self-efficacy, and commitment to the leader will be enhanced when basic psychological needs are satisfied. Further, they indicate that transformational leadership may be a central way to positively address employees' needs. Past research indicates the effectiveness of leadership development programs which targeted at understanding and fulfilling employees' needs. For instance, in a longitudinal field experiment Deci et al. (1989) found that training programs teaching leaders to provide guidance in a non-controlling way enhanced their ability to fulfill employees' need for autonomy. This, in turn, translated into increased job satisfaction among employees. Indeed, investing into training programs at the leadership-level may provide a sensitive way to allocate organizational resources given that most organizations are structured in a pyramid shaped way with few at the top affecting many below. Our studies show that addressing all three basic needs is an important issue for leadership effectiveness and they provide valuable input for the development of leadership trainings.

Another practical implication relates to the differential effects of need fulfillment. Practitioners may encounter situations where addressing all three psychological needs simultaneously is not feasible. Under these circumstances, they might have to prioritize the fulfillment of one need at the expense of another (Sheldon & Filak, 2008). The findings of the present research suggest that a central way to increase employees' self-efficacy is by addressing the need for competence, whereas commitment to the supervisor may be enhanced by fulfilling the need for relatedness. Employees' job satisfaction, on the other hand, appears to additively benefit by addressing all three psychological needs.

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Table 1

*Means, Standard Deviations, and Zero-Order Correlations; Study 1 and Study 2*

Variable	Study 1		Study 2		1	2	3	4	5	6	7	8	9	10
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>										
1. Age	36.03	11.55	33.36	11.32	-	-.22	.30	-.18	-.07	.00	-.16	.03	.21	-.11
2. Gender <sup>a</sup>	-	-	-	-	-.27	-	-.05	.01	-.02	-.08	.02	-.04	-.08	.01
3. Tenure	3.65	4.07	2.54	2.20	.39	-.17	-	-.11	-.11	-.04	-.08	.04	.04	-.05
4. TFL	2.99	.90	3.33	.85	-.16	.06	-.15	-	.69	.59	.79	.47	.11	.74
5. Autonomy	3.33	1.16	3.72	1.04	-.04	.01	-.03	.65	-	.69	.78	.46	.16	.62
6. Competence	3.67	.91	3.95	.88	.04	-.09	.01	.46	.67	-	.60	.38	.34	.47
7. Relatedness	2.81	1.16	3.40	1.06	-.06	.01	-.05	.70	.74	.57	-	.45	.09	.77
8. Job Satisfaction	4.72	1.61	4.93	1.40	.01	-.01	-.04	.53	.56	.51	.54	-	.14	.38
9. Occupational Self-Efficacy	3.08	.45	2.91	.41	.13	-.09	.06	.21	.34	.53	.28	.37	-	.08
10. Affective Commitment	2.75	.91	3.10	1.03	.03	-.44	.05	.67	.62	.47	.73	.51	.23	-

*Note.* TFL = transformational leadership. Values above the diagonal are correlation coefficients of Study 1; values under the diagonal are correlations coefficients of Study 2.

<sup>a</sup>0 = male, 1 = female.

All correlations above .10 are significant,  $p < .05$ .

Table 2

*Results of Multiple Mediation Analysis; Study 1 and Study 2*

Indirect Effect of TFL through	Dependent Measures											
	Job Satisfaction				Occupational Self-Efficacy				Affective Commitment to the Leader			
	Point Estimate	SE	BCa 90% CI		Point Estimate	SE	BCa 90% CI		Point Estimate	SE	BCa 90% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Autonomy <sup>a</sup>	.23	.11	.05	.41	-.03	.03	-.07	.02	-.02	.04	-.08	.04
Competence <sup>a</sup>	.08	.06	-.02	.18	.12	.02	.08	.15	.00	.02	-.04	.04
Relatedness <sup>a</sup>	.07	.11	-.11	.27	-.06	.04	-.13	.00	.40	.05	.32	.49
Autonomy <sup>b</sup>	.21	.08	.08	.35	.00	.03	-.03	.03	.04	.04	-.02	.11
Competence <sup>b</sup>	.17	.05	.09	.26	.12	.02	.09	.16	.00	.02	-.03	.04
Relatedness <sup>b</sup>	.17	.09	.02	.31	.00	.03	-.04	.04	.35	.04	.28	.42
<b>Contrasts</b>			BCa 95% CI				BCa 95% CI				BCa 95% CI	
C1 <sup>a</sup>	-.15	.15	-.45	.15	.14	.04	.07	.22	.02	.05	-.07	.12
C2 <sup>a</sup>	.00	.14	-.28	.25	.18	.05	.10	.27	-.40	.06	-.52	-.29
C3 <sup>a</sup>	.15	.20	-.24	.53	.04	.05	-.06	.15	-.42	.07	-.56	-.27
C1 <sup>b</sup>	-.04	.11	-.26	.19	.13	.03	.07	.18	-.05	.05	-.12	.03
C2 <sup>b</sup>	.00	.11	-.21	.23	.13	.04	.07	.19	-.35	.05	-.43	-.27
C3 <sup>b</sup>	.04	.14	-.22	.31	.00	.04	-.05	.06	-.31	.07	-.41	-.18
<b>Model<sup>a</sup> R<sup>2</sup></b>				.28***				.18***				.64***
<b>Model<sup>b</sup> R<sup>2</sup></b>				.40***				.29***				.61***

*Note.* TFL = transformational leadership; BCa = bias corrected and accelerated; CI = confidence interval for the population parameter. Bootstrap sample size = 5000. C1 = autonomy vs. competence path; C2 = competence vs. relatedness path; C3 = autonomy vs. relatedness path.

<sup>a</sup>Study 1. <sup>b</sup>Study 2.

\*\*\*  
 $p < .001$ .

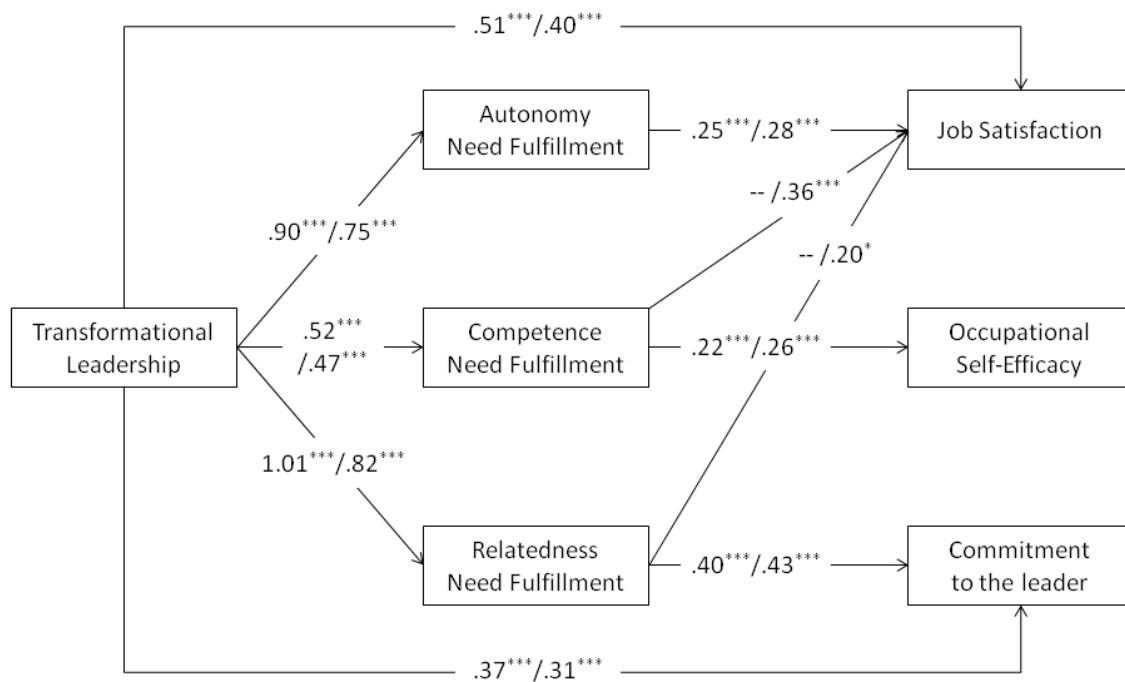


Figure 1. Unstandardized path coefficients for the proposed mediation effects. The first weight of each path refers to Study 1, the second one to Study 2.

\*  $p < .05$ ; \*\*\*  $p < .001$ .

## Chapter 2

### **Transformational Leadership and Performance: An Experimental Investigation of the Mediating Effects of Basic Needs Satisfaction and Work Engagement**

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### **Abstract**

The aim of the present research was to integrate and extend theorizing on transformational leadership, self-determination, and work engagement. In particular, we propose that the satisfaction of followers' basic psychological needs (i.e., for competence, relatedness, and autonomy) and work engagement mediate the relationship between transformational leadership and performance. We tested this model using an experimental design. A total of 190 participants worked on a brainstorming task under either a transformational or a non-transformational leadership condition. Followers' performance was operationalized through quantity, quality, and persistence (i.e., time spent on the task). Results revealed that satisfaction of the needs for competence and relatedness mediated the relationship between transformational leadership and work engagement, which, in turn, was positively related to quality and persistence. Taken together, these findings are largely in line with our theoretical model and support Bass' (1985) theorizing on need fulfillment being a central mechanism behind transformational leadership behavior.

*Keywords:* transformational leadership, self-determination, basic needs satisfaction, work engagement, performance

## Introduction

Transformational leadership is widely regarded as one of the most effective leadership styles (Judge & Piccolo, 2004). Accordingly, several studies have been devoted its mediating processes, in order to further understand the effectiveness of transformational leaders (e.g., Walumbwa & Hartnell, 2011). Whereas this stream of research has significantly enhanced our understanding of transformational leadership, it seems thus far to largely have neglected a central mechanism proposed by the transformational leadership theory: the mediating role of followers' needs. Indeed, Burns (1978) stated that "the essence of the leaders' power is [...] the extent to which they can satisfy—or appear to satisfy—specific *needs* of the followers" (p. 294; emphasis in original). Moreover, he defined the transformational leader as a person who "seeks to satisfy higher needs and engages the full potential of the follower" (p. 4). In a similar vein, Bass (1985) characterized the transformational leader as a person who involves followers' higher psychological needs, in turn motivating them to perform beyond expectations.

Surprisingly, to date only two studies (Hetland, Hetland, Andreassen, Pallesen, & Notelaers, 2011; Kovjanic, Schuh, Jonas, Van Quaquebeke, & van Dick, 2012) have examined followers' needs in the context of transformational leadership. Drawing on self-determination theory (Deci & Ryan, 2000), these studies showed that a) transformational leadership behavior is related to followers' basic psychological needs satisfaction and b) needs satisfaction mediates the relationship between transformational leadership and followers' job satisfaction, self-efficacy, and affective commitment.

The purpose of the present research is to build on this initial evidence and to address three central questions that have remained unanswered: First, whereas the previous studies linked transformational leadership and needs satisfaction to affective-related outcomes, it is unclear whether the same mediating processes also apply to objective measures. Hence, the

present research examines the influence of transformational leadership and followers' needs satisfaction on followers' performance (i.e., the most direct indicator of leadership effectiveness). Second, by adopting an experimental design, this study seeks to provide first support for the proposed causal links between transformational leadership, basic needs satisfaction, and followers' outcomes. This seems an important complement to the correlational (and self-report based) field studies that have tested the model. Finally, the present study strives to extend the theoretical model examined in previous research. Specifically, we echo Greguras and Diefendorff (2009), who argued that examining the effects of basic needs satisfaction without considering its impact on intrinsic motivation may omit a crucial intervening step. Moreover, we follow Walumbwa and Hartnell (2011), who criticized that most studies on transformational leadership processes have examined rather basic models and largely neglected the possibility of sequential mediation. Therefore, building on the self-determination literature, we examined work engagement—a key indicator of intrinsic motivation in the workplace (Salanova & Schaufeli, 2008)—as a second, sequential mediator linking transformational leadership and followers' outcomes. Figure 1 presents our theoretical model.

### **Transformational Leadership and Basic Needs Satisfaction**

Bass (1985) conceptualized transformational leadership as containing four dimensions. *Idealized influence* refers to appealing to values, role modeling behavior, articulating high expectations of and confidence in followers. *Inspirational motivation* refers to providing a compelling vision and meaning to followers and being optimistic about the future. *Intellectual stimulation* refers to encouraging followers to challenge existing approaches and assumptions, think in new ways, and reframe problems to find new solutions. *Individualized consideration* refers to showing followers personal attention and respect, taking their differences and perspectives into account, and being a coach and mentor.

With these behaviors, transformational leaders seem to address three central psychological needs (Hetland et al., 2011; Kovjanic et al., 2012): the need for *competence*, which refers to feelings of mastery, accomplishment, and effectiveness; the need for *relatedness*, which refers to feelings of connectedness and association with other persons and being significant to others; and the need for *autonomy*, which refers to feelings of choice and not being controlled by forces alien to the self and to being able to self-organize one's behavior. These three needs are central aspects of one of the most influential theories on human motivation, namely the self-determination theory (SDT; Deci & Ryan, 2000). In support of the SDT, a great number of studies have demonstrated that satisfaction of these three needs is essential for personal growth (e.g., Deci et al., 2001), well-being (e.g., Williams, Niemiec, Patrick, Ryan, & Deci, 2009), and effective performance (e.g., Baard, Deci, & Ryan, 2004). According to SDT, the occurrence of need satisfaction is mainly enabled by an individual's social environment. In the work-place, leaders are thought of as being the most important factor, since they can provide or deny opportunities for followers feeling competent, related to, and autonomous (Deci, Connell, & Ryan, 1989).

Transformational leaders seem to be especially apt to support their followers' basic needs.

Specifically, by providing challenges while also showing confidence in followers' abilities, transformational leaders create an environment that is considered supportive for competence need satisfaction (Ryan & Deci, 2008). Further, transformational leaders respect their followers as individuals, simultaneously strengthening the team spirit by emphasizing the importance of the group's goals (Bass, 1985). According to SDT, these behaviors support the relatedness need satisfaction. Finally, by encouraging followers' to take on more responsibilities, by considering their perspectives when making decisions and by providing meaning, transformational leaders create situations crucial for autonomy need satisfaction (Ryan & Deci, 2008). Therefore, in keeping with prior research, we propose:



*Hypothesis 1:* Transformational leadership has positive effects on followers' satisfaction for competence, relatedness, and autonomy needs.

### **Basic Needs Satisfaction, Work Engagement, and Performance**

One concept that is strongly associated with SDT, given its close relation to intrinsic motivation, and one that has recently been linked to transformational leadership is work engagement (Tims, Bakker, & Xanthopoulou, 2011). Schaufeli and Bakker (2004) conceptualized work engagement as a positive, work-related state that is characterized by *vigor*, *dedication*, and *absorption*. Vigor refers to high levels of energy and willingness to put effort in one's work, and to persistence when facing difficulties. Dedication refers to enthusiasm, inspiration, and a strong psychological identification with one's work. Finally, absorption refers to being fully concentrated and happily engrossed in one's work. Hence, as Salanova and Schaufeli (2008) noted, work engagement reflects a state of mind characterized by high intrinsic motivation.

Given that work engagement is strongly associated with work-related outcomes, such as organizational citizenship behavior (OCB), turnover (negative), proactive behavior, and performance (e.g., Babcock-Roberson & Strickland, 2010; Bakker & Bal, 2010; de Lange, De Witte, & Notelaers, 2008; Salanova & Schaufeli, 2008), its antecedents have received great attention in the literature. Two studies in particular are relevant for the present research. First, Van den Broeck, Vansteenkiste, De Witte, Soenens, and Lens (2010) found that followers whose basic needs were satisfied reported a greater work engagement. This result supports a central tenet of SDT, which suggests that need satisfaction is a necessary condition for intrinsic motivation (Deci & Ryan, 2000). Second, Tims et al. (2011) recently linked transformational leadership to work engagement demonstrating a positive relationship between followers' work engagement and their perception of their leaders being transformational. The authors concluded that transformational leadership is an important

source of this positive work-related psychological state. In an attempt to integrate these recent findings on transformational leadership, SDT and work engagement, we propose:

*Hypothesis 2:* Satisfaction of the needs for competence, relatedness, and autonomy mediates the relationship between transformational leadership and work engagement.

Finally, incorporating the rationale developed above (H1 and H2) and building on previous research that has linked transformational leadership, need satisfaction, and work engagement to followers' performance (e.g., Bakker & Bal, 2010; Gagné & Deci, 2005; Walumbwa & Hartnell, 2011), we propose:

*Hypothesis 3:* Transformational leadership is indirectly related to follower performance through the mediating influence of followers' needs satisfaction and, in turn, work engagement.

## **Method**

### **Participants**

To reach a diverse sample, we recruited participants via several separate online portals. Our sample consisted of 190 individuals (73% were female), whose average age was 28.36 years ( $SD = 8.51$ ). At the time of the study, 62.6 per cent of the participants were employed, working an average of 24.54 ( $SD = 14.17$ ) hours per week. The most participants (51.6%) had a general qualification for university entrance, followed by participants who had at least an university bachelor degree (31.1%).

The participants were randomly assigned to the experimental conditions (transformational vs. non-transformational leadership). In each condition, the number of participants was equal ( $n = 95$ ). Data were collected online using the survey tool Unipark.

### **Procedure**

In line with the goals of the present research (i.e., examining causality and measuring

the impact on objective performance measures), we adopted an experimental approach. In doing so, we built our study using designs tested and applied in previous experimental research on transformational leadership (e.g., Bono & Judge, 2003; Jung & Avolio, 2000; Sosik, 1997).

We invited the subjects to participate in an online experiment about “leadership behavior and work performance”. After providing demographic information, the participants were instructed to imagine working as part of an R&D team in a paper manufacturing company, and that the leader of a new project was going to speak to them. Subsequently, participants read one of the two vignettes (transformational vs. non-transformational leadership), followed by the manipulation check and the measurement of needs satisfaction and work engagement. Next, all participants were instructed to imagine that their leader had assigned them the task of generating as many ideas as possible about the future use of paper. The participants were given four minutes to complete the task (after four minutes the next page appeared automatically), with the option to quit the task whenever they felt they had run out of ideas. In conclusion, participants were thanked for their participation.

**Manipulation of transformational leadership.** Following previous experimental research on transformational leadership (e.g., Bono & Judge, 2003), we contrasted transformational and non-transformational leadership. Specifically, we adopted vignettes developed by Felfe and Schyns (2006), which were based on scripts written by Kirkpatrick and Locke (1996). While the transformational leader vignette was inspiring and included the key elements of transformational leadership, such as vision, high expectation, confidence, and mentoring, the non-transformational vignette was factual (i.e., clarifying timetables, responsibilities, and control procedures), excluding any reference to values or visions (the vignettes are provided in the Appendix).

## Measures

All constructs were measured with established scales adopted from previous research. Responses were made on five and seven point Likert type scales. Questionnaires in English were translated to German and then back-translated by two separate bilingual researchers. The comparison between the original and the back-translated versions supported the conceptual equivalence between the items. The internal consistency of all scales exceeded the traditional threshold of .70.

**Transformational leadership.** Transformational leadership was assessed with 19 items from the German version of Bass and Avolio's (1995) Multifactor Leadership Questionnaire (MLQ5X–Short; Felfe, 2006). Sample items are: "My supervisor helps me to develop my strengths" and "My supervisor emphasizes the importance of having a collective sense of mission." Consistent with previous research (e.g., Bono & Judge, 2003; Walumbwa & Hartnell, 2011), we combined all items into the single factor of transformational leadership.

**Needs satisfaction.** Needs satisfaction was assessed with the Basic Needs Satisfaction in Relationship Scale (La Guardia, Ryan, Couchman, & Deci, 2000), which measures each need satisfaction with 3 items. In line with previous research on transformational leadership (Kovjanic et al., 2012), we chose this scale due to our interest in the leader as the critical contextual factor for followers' need satisfaction, rather than in the broader working context. Sample items are: "In the working relationship with my direct supervisor I feel very capable and effective" (*competence*), "In the working relationship with my direct supervisor, I often feel a large personal distance" (*relatedness*, reversely coded), "In the working relationship with my direct supervisor, I have a say in what happens and I can voice my opinion" (*autonomy*).

**Work engagement.** Work engagement was assessed with the 9-item version of the Utrecht Work Engagement Scale (UWES-9; Schaufeli, Bakker, & Salanova, 2006). Sample items are: “At my job, I feel strong and vigorous” (*vigor*), “I am enthusiastic about my job” (*dedication*), “I am immersed in my work” (*absorption*). As recommended by the authors, we combined vigor, dedication, and absorption into an overall work engagement score.

**Performance.** Three measures of performance were used: quantity of ideas, quality of ideas and persistence on the task. We adopted these performance indicators from previous research (e.g., Jung & Avolio, 2000). Quantity was measured by two trained research assistants independently counting the total number of unduplicated ideas generated by each participant. Quality was measured by the two assistants independently rating the innovativeness of each idea on a 5-point scale. For each participant, an average quality score was created. To assess inter-rater reliability, we conducted Cohen’s Kappa (Cohen, 1960). For quantity, the inter-rater reliability was .89 and for quality .83, both exceeding the threshold of .75. Hence, the inter-rater reliability was high. Further, the agreement rate in our study was similar to agreement rates which were reported in related studies (e.g., Jung & Avolio, 2000). Persistence was measured by the effective time spent on the task, which was registered by the survey tool (Unipark).

**Controls.** In line with previous research (e.g., Walumbwa & Hartnell, 2011), we included participants’ age, gender, and work experience as control variables, since these variables could influence performance.

## Results

### Manipulation Check

To examine the efficacy of our leadership manipulation, we conducted an analysis of variance (ANOVA). The results indicated that the manipulation of transformational leadership was successful ( $F(1, 188) = 485.25, p < .001, \eta^2 = .72$ ). Participants rated the

transformational leader as more transformational than the non-transformational leader ( $M = 3.91$ ,  $SD = .50$  vs.  $M = 2.16$ ,  $SD = .60$ ).

### Validity Analyses

To examine the validity of our measures, we conducted a confirmatory factor analysis (CFA) using the Mplus (Muthén & Muthén, 2010) software. The leadership condition, quantity, quality, and performance were entered as manifest variables, each need satisfaction and work engagement as latent. Since leadership condition was a dichotomous variable, the weighted least square estimator (WLSMV) was used for parameter estimation (Muthén & Muthén, 2010). The results showed that our measurement model fits the data well ( $\chi^2/df = 1.37$ ; TLI = .94; CFI = .96; RMSEA = .04), all indicators significantly loading on their intended latent factors (standardized loadings ranged from .72 to .97,  $p < .001$ ). In the next step, we tested the proposed eight-factor model against two theoretically plausible alternative models: a) a six-factor model combining all three need satisfaction scales into one factor, b) a five-factor model combining need satisfaction scales and the work engagement scale into one factor. The chi-square difference test showed that the proposed eight-factor model fitted the data significantly better ( $p < .001$ ) than the alternative models. Next, as recommended by Farrell (2010), we examined each latent factor's *average variance extracted* (AVE; i.e., the average variance explained by the items composing each scale) to further establish constructs' validity. The AVEs of all constructs exceeded .50 (AVEs ranged from .82 to .93) fulfilling the criterion concerning convergent validity (Fornell & Larcker, 1981). Further, all squared correlations between scales were lower than their AVEs fulfilling the criterion concerning divergent validity. Thus, the analyses indicated the validity of the study constructs.

### Descriptive Statistics

Descriptive statistics and correlations for study variables are presented in Table 1. The

leadership condition and the perceived transformational leadership were related to all study variables except for the participants' quantity of ideas ( $r = .06, p = .45$  and  $r = .04, p = .60$ , respectively).

### Hypotheses Testing

We applied structural equation modeling to test all of the proposed relationships simultaneously. To test the proposed mediation effects (H2 and H3), we followed recommendation by Preacher, Zyphur, and Zhang (2010) and conducted bias-corrected bootstrap confidence intervals (CI). We computed 90% CI as they correspond to a one-tailed  $\alpha = .05$  hypothesis test (Preacher et al., 2010). Since quantity of ideas failed to meet the criteria for testing mediation (significant relationship with the independent and with the mediating variable; Baron & Kenny, 1986), quantity was omitted from the model.

**Hypothesis 1.** Hypothesis 1 received full support. As proposed, transformational leadership had a positive effect on followers' competence ( $\beta = .66, p < .001$ ), relatedness ( $\beta = .77, p < .001$ ), and autonomy ( $\beta = .64, p < .001$ ), satisfaction.

**Hypothesis 2.** Hypothesis 2 received partial support. As hypothesized, the influence of transformational leadership on followers' work engagement was mediated by satisfaction of the need for competence ( $b = .74, SE = .16, CI = .49$  to  $1.02$ ) and for relatedness ( $b = .32, SE = .18, CI = .03$  to  $.63$ ). Contrary to our assumption, autonomy satisfaction was not a significant mediator ( $b = .14, SE = .14, CI = -.08$  to  $.37$ ).

**Hypothesis 3.** The data also provided partial support for Hypothesis 3. As hypothesized, transformational leadership had positive indirect effects on both performance quality and persistence through a) competence and b) relatedness satisfaction, and in turn, through work engagement. Again, against our assumption, the mediating paths involving autonomy satisfaction were not significant. The full results are presented in Table 2 and in Figure 1.

## Discussion

With the present study, we sought to integrate and extend recent insights on transformational leadership, basic needs satisfaction, and work engagement. We argued that the relationship between transformational leadership and followers' performance would be sequentially mediated by followers' need satisfaction and work engagement. As predicted, results revealed that transformational leadership induced satisfaction of the needs for competence, relatedness, and autonomy, with the former two subsequently predicting followers' work engagement. Work engagement, in turn, led to greater performance quality and greater task persistence.

These findings make several contributions to the literature. First, linking transformational leadership, need satisfaction, and performance, we yield further support for Burns' (1978) and Bass' (1985) assumption that followers' need satisfaction is a central mechanism through which transformational leaders influence their followers. Second, this research is the first to establish causality between transformational leadership and a) followers' needs and b) their work engagement. Further, this research is the first to establish causality between work engagement and follower performance. Hence, this study effectively complements previous cross-sectional field research on these links. Third, by integrating the literatures on need satisfaction and work engagement, this study answers Greguras and Diefendorff's (2009) and Walumbwa and Hartnell's (2011) calls for multi-step mediational models. Compared to traditional single mediator approaches, these models can provide a more detailed understanding of the psychological steps that link transformational leadership and its outcomes.

Two findings were unexpected. First, transformational leadership did not have a positive effect on performance quantity. However, this finding is consistent with previous studies using similar experimental operationalizations of performance (e.g., Jung & Avolio,



2000; Kirkpatrick & Locke, 1996). We agree with Jung and Avolio's (2000) assumption that transformational leadership potentially causes followers to trade off quantity for quality. Encouraged to think in new ways while facing high leaders' expectations, followers might make efforts to produce a few original ideas instead of many trivial ones. Second, autonomy need satisfaction did not mediate the influence of transformational leadership on work engagement and, in turn, performance. This find is quite surprising since within the self-determination theory (Deci & Ryan, 2000) the satisfaction of the need for autonomy is seen as the most important for intrinsic motivation to occur. Interestingly, our findings are similar to Sheldon and Filak's (2008) results. In their study, autonomy satisfaction was the weakest predictor of intrinsic motivation. Furthermore, the autonomy satisfaction was of a similar effect size ( $\beta = .15$ ) like in our study ( $\beta = .10$ ). We agree with Sheldon and Filak who suspected that this result was caused by the substantial correlations among the need satisfaction scores, which generally decreases the statistical power of detecting unique effects (Field, 2009). However, we think that future research should further investigate this issue since the findings are contradictory to SDT's proposition regarding the importance of the need for autonomy.

### **Limitations and Strengths**

Perhaps the central limitation of the present study was the controlled and somewhat artificial form of the leadership encounter. Specifically, as in most experimental studies on leadership, the time and form of leader experiences were restricted. Further, as we used vignettes for leadership manipulation, there was no interaction between the leader and the participants. However, it seems remarkable that despite the limited leadership experience provided by the experimental settings, we established robust effects on participants' needs, work engagement, and objective performance. Furthermore, as Dipboye (1990) pointed out, experimental research can be regarded as an optimal complement to studies carried out in the

field: the weakness of one method (internal validity of field studies, mutual realism of experimental studies) is compensated by the strength of the other approach. Hence, when considered in combination, the field studies conducted earlier and the present experimental research provide strong support for the role of needs and work engagement in linking transformational leadership and positive employee outcomes. We believe that these findings can provide valuable insights for future research on leadership processes and for future developments of transformational leadership theory.

### **Practical Implications**

The results of the present study suggest that organizations can benefit from implementing measures to increase employees' work engagement, since work engagement appears to promote employees' task performance and persistence. Furthermore, the study provides an indication of how to design such measures. It suggests that initiatives focusing on followers' basic psychological needs are particularly effective. Finally, the findings indicate that transformational leadership is one concrete way to foster employees' need satisfaction and, consequently, work engagement, persistence, and performance. Hence, the frameworks of psychological needs and transformational leadership seem to provide valuable input for the design of leadership development programs.

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Table 1

*Means, Standard Deviations and Zero-Order Correlations*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
1. Age	28.36	8.51											
2. Gender <sup>a</sup>	-	-	-.16										
3. Work Experience <sup>b</sup>	-	-	.41	.28 <sup>e</sup>									
4. TFL <sup>c</sup>	-	-	-.02	.00 <sup>e</sup>	.20 <sup>e</sup>								
5. TFLp	3.02	1.05	-.13	.03	-.04	.85	<b>.97</b>						
6. Competence	3.37	.98	-.04	-.01	.00	.66	.75	<b>.89</b>					
7. Relatedness	2.61	1.15	-.10	.02	-.04	.77	.81	.75	<b>.88</b>				
8. Autonomy	2.88	1.05	-.06	-.05	-.12	.64	.75	.79	.77	<b>.86</b>			
9. Work Engagement	4.28	1.19	-.01	-.02	.01	.65	.76	.77	.71	.69	<b>.95</b>		
10. Quantity	3.97	4.62	.06	.13	.08	.06	.04	-.01	-.00	.03	.13		
11. Quality	2.14	1.54	.06	.12	.07	.26	.25	.15	.20	.10	.27	.21	
12. Persistence <sup>d</sup>	153.18	87.38	-.01	.03	-.10	.23	.23	.18	.18	.16	.32	.52	.47

*Note.* TFLp = perceived transformational leadership.

<sup>a</sup>0 = male, 1 = female; <sup>b</sup>0 = not working at the moment, 1 = working at the moment; <sup>c</sup>0 = non-TFL condition,

1 = TFL condition. <sup>d</sup>Score is in seconds. <sup>e</sup>The Pearson chi-square test was used to analyse the relationships between categorical data. All relationships examined were not significant.

Values on the diagonal are Cronbach's alpha. All correlations above .14 are significant,  $p < .05$ .



Table 2

*Results of Multiple Mediation Analysis*

	Dependent Measures							
	Quality				Persistence			
	Point Estimate	SE	90% CI		Point Estimate	SE	90% CI	
			Lower	Upper			Lower	Upper
<b>Indirect Effect of TFL through</b>								
Competence and Work Engagement	.32	.13	.15	.56	24.23	8.04	12.97	39.74
Relatedness and Work Engagement	.14	.09	.03	.33	10.52	6.60	1.77	24.34
Autonomy and Work Engagement	.06	.07	-.02	.19	4.60	5.00	-1.96	14.67

*Note.* TFL = transformational leadership; CI = confidence interval for the population parameter. Bootstrap sample size = 5000.

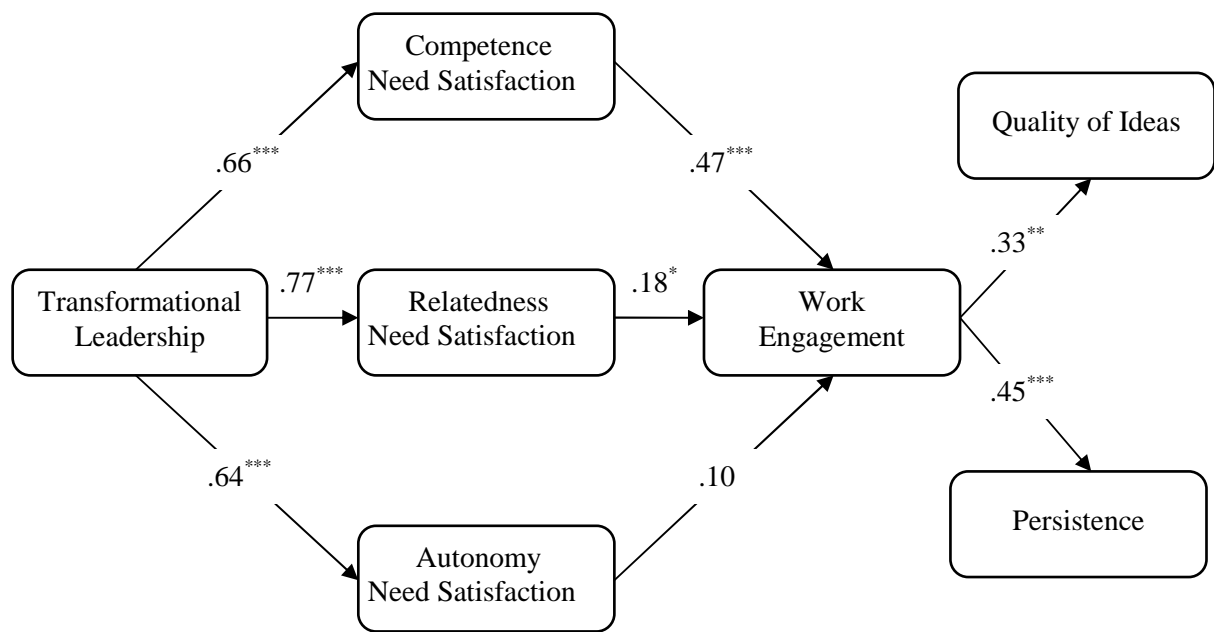


Figure 1. Standardized path coefficients for the proposed mediation model.

\*  $p < .05$ ; \*\*\*  $p < .001$ .

## **Appendix**

### **Leadership Manipulation**

Please imagine that you are in the following situation:

You are just starting your new job in a big company that produces paper. Together with the other company employees, you are set to work on a current project called “Paper of the Future”. Your new supervisor, the leader of the project, holds a short speech to welcome you and the other employees: <sup>1</sup>

#### **Transformational leadership**

„Good morning, Ladies and Gentlemen. Today is the kick-off of the new project “Paper of the Future”. With this project we can set new quality and ecological standards, and we will develop new ways of how and what paper can be used for. If we should succeed with this project, and I am sure that we will, we all will be proud of what we have achieved together.

I have chosen you up to participate in this project because of your skills and knowledge, and because I am convinced that you will give your best. By participating in this project, you will gain valuable experience for your personal and professional careers. [...]

But now I am going to explain the first steps of the project...”

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<sup>1</sup> The vignettes presented here are shortened. The complete material can be required from the first author. The vignettes are based on the work of Felfe and Schyns (2006).

**Non-transformational leadership**

„Good morning, Ladies and Gentlemen. Today is the kick-off of the new project “Paper of the Future”. As you already know, the pilot phase of this project is half a year. We will see whether the project will be carried forward after this phase. I hope it will. I have worked out a plan of what needs to be done, who is responsible for what, and what the deadlines are. Please, stick to this.

I expect you to be engaged and flexible. Any overtime will be compensated for, of course. The deadline for this phase is tight and we don’t have any time to waste. Thus, I’m making it my job to control that we are within the time schedule. [...]

But now I am going to explain the first steps of the project...”

## **Chapter 3**

### **Transformational Leadership Behavior and Employees' Need Fulfillment: Exploring the Relevance of Leader and Employee Gender**

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### **Abstract**

Consideration of followers' needs is an important characteristic of transformational leadership which differentiates transformational leadership from other leadership styles. Although prior research has paid much attention to transformational leadership, followers' needs have been widely overlooked. The aim of the present study was to take a closer look at the transformational leadership–follower need satisfaction relationship with respect to leader and follower gender. Drawing on the self-determination and the role congruity theory, I investigated the interaction of leader and follower gender and transformational leadership on employee satisfaction of the needs for competence, autonomy, and relatedness in a field study ( $N = 1226$ ). The results revealed that leader gender most strongly impacted female employees' need satisfaction. Female employees working with a female leader reported the greatest levels of autonomy and relatedness satisfaction. However, the relevance of gender disappeared when transformational leadership was considered. A three-way interaction was not supported. The data suggest that leaders, who are seen as transformational, regardless of their and their employees' gender, effectively influence followers in their needs fulfillment.

*Keywords:* transformational leadership, self-determination, basic needs satisfaction, gender

## Introduction

Bass' (1985) development of the transformational leadership theory has strongly influenced the leadership research field. According to Avolio (2007), transformational leadership has been the most frequently investigated leadership theory over the last twenty years. A great number of studies have shown that transformational leadership is positively related to desirable employee outcomes, such as organisational commitment (Wang & Walumbwa, 2007), job satisfaction (Brown & May, 2012), satisfaction with the leader (Rowold & Heinitz, 2007), and individual and group performance (Walumbwa & Hartnell, 2011; Wang & Howell, 2010). Further, Judge and Piccolo (2004) demonstrated the *augmentation effect*, which claims that transformational leadership adds beyond the effect which leadership behaviors such as the transactional have on employee outcomes (Bycio, Hackett, & Allen, 1995). Their meta-analysis showed that transformational leadership had an impact on employee job satisfaction, satisfaction with the leader, employee motivation, and perceived leader effectiveness, over and above those of transactional leadership. Recently, Rowold and Heinitz (2007) supported the augmentation effect on objective performance (i.e., profit) as well. Accordingly, transformational leadership behavior can be seen as one of the most effective leadership styles.

One important aspect that differentiates transformational from transactional leadership is an integration of followers' emotional needs (Bono & Judge, 2003). Contrary to transactional approaches to leadership, which emphasize social exchange (e.g., guiding followers' behaviors through control and the allocation of rewards and punishments), transformational leadership theory focuses on followers' higher order needs in order to explain leadership effectiveness. Distinguishing between transactional and transformational leaders, Burns (1978), the pioneer of transformational leadership theory, characterized the transformational leader as a person who "seeks to satisfy higher needs and engages the full

potential of the follower” (p. 4). In the same vein, Bass (1985) stated that transformational leaders pay attention to followers’ needs and take them into account, which, in turn, results in followers performing beyond expectations. Thus, transformational leaders motivate their followers to put more effort into their work by involving their needs.

Although followers’ needs are a central tenet of the transformational leadership theory, they have long been neglected by leadership research. This is set to change however, as research interest seems to have awoken. Recently, three studies have been devoted to the aspect of followers’ needs in transformational leadership process (Hetland, Hetland, Andreassen, Pallesen, & Notelaers, 2011; Kovjanic, Schuh, & Jonas, under review; Kovjanic, Schuh, Jonas, Van Quaquebeke, & van Dick, 2012). Drawing on self-determination theory (Deci & Ryan, 2000), these studies showed that transformational leadership is related to followers’ basic psychological needs satisfaction (i.e., satisfaction of the needs for competence, autonomy, and relatedness). Kovjanic and colleagues (under review; 2012) demonstrated that need satisfaction mediates the relationship between transformational leadership and followers’ outcomes, such as job satisfaction, affective commitment to the leader, work related self-efficacy, work engagement, and performance. Further, Hetland et al. (2011) showed that transactional leadership, in contrast to transformational leadership, is negatively related to employees’ need fulfillment. Accordingly, these studies provided support for Bass’ (1985) and Burns’ (1978) theorizing on the importance of followers’ needs for transformational leadership effectiveness.

The purpose of the present research is to build on this initial evidence and to further investigate the nature of the relationship between transformational leadership and followers’ psychological need satisfaction. In particular, the present study investigates the role of leader and employee gender regarding this relationship. As previous studies have shown, perceptions of leaders and their effectiveness seem to be affected by leader and follower



gender. For example, women are seen as leading more transformational than men (e.g., Eagly, Johannesen-Schmidt, & van Engen, 2003). However, female transformational leaders are perceived being less effective compared to their male transformational counterparts (Douglas, 2012; Reuvers, van Engen, Vinkenburch, & Wilson-Evered, 2008). Especially male followers seem to devalue female leaders who display transformational behaviors. As Ayman, Korabik, and Morris (2009) demonstrated, leaders' performance was rated the lowest by male employees when the transformational leader was a woman. Hence, it seems that showing high amounts of transformational leadership favors male leaders, particularly in the eyes of male employees. Accordingly, the research question for this study is: Do the respective genders of the leader and the follower impact the relationship between transformational leadership and follower need satisfaction?

Need satisfaction can be regarded as a proxy for leadership effectiveness since transformational leaders exert their influence on work-related outcomes through employees' need satisfaction (Kovjanic et al., under review; 2012). However, need satisfaction is an employee psychological state, and therefore a different measure than perception of leader effectiveness in terms of leader performance. Hence, I believe that it is of great importance to test whether leader and follower gender influence employee psychological states in the same vein as employees' leader effectiveness perceptions.

### **Transformational Leadership and Follower Need Satisfaction**

According to Bass (1985), four dimensions of transformational leadership can be identified. The first dimension is labeled *idealized influence*, and refers to appealing to values, acting as a role model for followers, and communicating high expectations to followers. The second dimension is labeled *inspirational motivation*, and refers to the articulation of an appealing and inspiring vision, providing meaning for the task at the hand and a challenge for followers, communicating optimism about future goal attainment, and

expressing confidence in followers' ability. The third dimension is labeled *intellectual stimulation*, and refers to the degree to which the leader challenges assumptions and values, encourages followers to think in new ways, while tolerating mistakes and soliciting followers' ideas without judgment. The fourth and final dimension is labeled *individual consideration*, and refers to the degree to which the leader treats each follower as an individual, listens attentively, pays attention to each follower's needs, coaches, teaches, and provides each follower with continuous feedback.

As indicated by previous studies (Hetland et al., 2011; Kovjanic et al., 2012), with these behaviors, transformational leaders address follower needs, which the self-determination theory (SDT; Deci & Ryan, 2000) has identified as central psychological needs whose satisfaction is essential for personal growth, well-being, and effective performance. These needs are the need for *competence* (i.e., a feeling of mastery and effectiveness; White, 1959), the need for *autonomy* (i.e., a feeling of volition and choice; Deci, 1975), and the need for *relatedness* (i.e., a feeling of connectedness and being significant to others; Baumeister & Leary, 1995). Indeed, a great number of studies have demonstrated that the fulfillment of these needs is positively associated with various desirable outcomes, such as health, organizational commitment, job satisfaction, and work performance (e.g., Baard, Deci, & Ryan, 2004; Kovjanic et al., 2012; Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010; Williams, Niemiec, Patrick, Ryan, & Deci, 2009).

According to SDT, it is an individual's social environment which mainly enables the occurrence of need fulfillment. In the work-place, leaders are seen as the most important factor for employees' needs satisfaction, since they can provide or deny opportunities for followers' feelings of competence, autonomy, and relatedness (Deci, Connell, & Ryan, 1989). Specifically, in contrast to leadership styles that are characterized by monitoring and control (e.g., transactional leadership), transformational leadership is characterized by

behaviors which are recognized by the SDT as supportive for needs satisfaction. Behaviors such as providing challenges, showing confidence in followers' abilities, and performance-promoting feedback are considered as supportive for competence satisfaction (Ryan & Deci, 2008). Further, behaviors such as encouraging followers' to take on more responsibilities, considering followers' perspectives when making decisions, and providing meaning are seen as crucial for autonomy need satisfaction. Finally, behaviors such as respecting followers as individuals, caring for them, and paying attention to their thoughts and feelings are behaviors which are assumed to support relatedness satisfaction (Sheldon & Filak, 2008). Therefore, in keeping with prior research, I propose:

*Hypothesis 1:* Transformational leadership is positively related to followers' satisfaction of the competence, autonomy, and relatedness need.

### **Leader Gender as a Moderator**

Prior research on leadership and leader gender has consistently shown that women face more obstacles in being accepted as a leader than men do (Heilman, 2001). As Schein (1973, 1975) has demonstrated, leadership is gender typed. When individuals think about leaders, they think considerably more of characteristics which are more likely to be held by men than by women, e.g., assertive, controlling, dominant, forceful, self-sufficient, competitive, and selfish. In contrast to these *agentic* attributes, *communal* characteristics, which are attributed more strongly to the female gender role, such as kind, helpful, interpersonally sensitive, nurturing, and gentle, are considered irrelevant or even hindering for success in the leader role (for a meta-analysis see Koenig, Eagly, Mitchell, & Ristikari, 2011). Thus, beliefs about leaders and men are similar (i.e., congruent) while beliefs about leaders and women are dissimilar (i.e., incongruent). As Eagly and Karau (2002) stated, women "conforming to their gender role would produce a failure to meet the requirements of their leader role, and confirming their leader role would produce a failure to meet the

requirements of their gender role” (p. 576). Accordingly, evaluations of women’s potential as leaders as well as the evaluation of their actual leadership behavior are less favorable compared to their male counterparts. As demonstrated in numerous studies (for a review see Carli & Eagly, 1999), displaying agentic behaviors (i.e., behaviors which are believed to be highly relevant for successful leadership) results in a devaluation of women, as these behaviors violate the beliefs of how women ought to behave (prescriptive beliefs; Eagly & Karau, 2002). Accordingly, a strategy for women to be accepted as leaders would be to choose leadership behaviors which are more congruent with the expectations of their gender role.

A meta-analysis by Eagly et al. (2003) showed that female leaders seem to more often choose transformational leadership behaviors than male leaders. They were rated higher on most transformational dimensions, while their male counterparts were rated higher on transactional dimensions. Indeed, adopting a transformational leadership style seems to bridge the gap between female gender and leader roles, since various transformational behaviors, especially on the individualized consideration dimension, are congruent to communal characteristics (Eagly et al., 2003). Bringing together transformational leadership, which is seen as the most effective leadership style (Judge & Piccolo, 2004), and the role congruity theory (Eagly & Karau, 2002), which postulates that leaders are more effective when their leadership behavior corresponds to behavior expectations of their gender role, one might assume that female leaders scoring high on transformational leadership would be the most effective. However, as Heilman and Chen (2005) demonstrated, women who show prescription-consistent behaviors (e.g., helpful, caring) do not receive the same recognition as men who engage in the very same actions. Heilman and Chen concluded that communal behaviors are routinely expected from women and as such are not seen as being particularly noteworthy. When men are helpful and caring it is more likely that the communal behavior

will stand out and be noticed. Thus, women seem to suffer more with respect to gender prejudice. Women who show agentic behaviors induce negative reactions; men who show communal behaviors do not. In contrast, they outperform women on performance evaluations and reward recommendations (Heilman & Chen, 2005). As Carli (2001) stated, men have much greater behavioral latitude than women: They are influential even when they do not comply with their gender role (Carli & Eagly, 1999). With respect to these findings, it is likely that showing transformational behaviors will favor male leaders, even though these behaviors better fit the female gender role. Indeed, studies which have investigated the interaction between leader gender and transformational leadership found that, compared to their female counterparts, male transformational leaders were perceived as a) being more effective (Douglas, 2012; Reuvers et al., 2008) and b) having higher key leader competencies (e.g., problem solving, oral and written communication, listening, interpersonal skills, influence; Ayman et al., 2009). According to these results, I expect an advantage for male transformational leaders regarding their impact on followers' needs satisfaction:

*Hypothesis 2:* The effect of transformational leadership on followers' needs satisfaction is stronger for male leaders than for female leaders.

### **Employee Gender as a Moderator**

Employee characteristics are usually not a subject of leadership theories (Howell & Hall-Merenda, 1999). Even though leadership is a social process determined through the interaction of leaders and followers (Zhu, Avolio, & Walumbwa, 2009), leadership theories and research have nearly exclusively focused on what impact a leader's traits and behaviors have on the attitudes and behaviors of his or her followers (Howell & Shamir, 2005). Transformational leadership theory and research are not an exception. Relatively little research has been conducted highlighting the role of employees' characteristics in the influence transformational leadership has on employees' attitudes and behaviors (Zhu et al.,

2009). Thus, employee gender has not received much attention as a moderating factor of the relationship between transformational behaviors and their effectiveness (Douglas, 2012). As far as I am aware, the only study on the subject was conducted by Douglas (2012), who explicitly explored the interplay between transformational leadership and subordinate gender. Although Douglas did not consider the theoretical foundation sufficient to hypothesize about any specific effects, I believe that prior research on leader perception, values, and need satisfaction can offer some valuable theoretical and empirical input on this issue. Thus, I believe that an assumption on how employee gender will moderate the impact of transformational leadership on employees' needs satisfaction can be formulated.

Concerning leader role perception, a review by Schein (2001) indicated that women's and men's conceptions of successful leaders have developed apart over time. While men "over the course of almost 3 decades [...] have continued to perceive men as more likely than women to possess characteristics necessary for managerial success" (p. 678), women's expectations have shifted to a less traditional view. Accordingly, men still expect their leaders to be agentic, but women expect their leaders to be communal as well as agentic (Sczesny, Bosak, Neff, & Schyns, 2004). As previous research has indicated, meeting such followers' expectations is a crucial determinant of leader effectiveness. According to the implicit leadership theory (ILT; Lord & Maher, 1991), the greater the match between expected and perceived leader characteristics and behaviors, the more positively subordinates respond to leaders. When leaders meet subordinates' expectations, subordinates are more open to the leader's influence, their identification with the leader as well as their job satisfaction and well-being are greater, and they are more committed to the organization (Eckloff & Van Quaquebeke, 2008; Epitropaki & Martin, 2005). Comprising communal behaviors, transformational leadership seems to better match women's expectations of leader

characteristics. Accordingly, I believe that transformational leaders will be more accepted by women and, in turn, they will have a greater impact on women regarding need satisfaction.

Study results concerning gender differences in values and need satisfaction point in the same direction. Compared to men, women are not only seen as more communal, they also value and perceive communal characteristics as more important (Ryckman & Houston, 2003). While women may wish to see communal characteristics exhibited in their leaders, men may be indifferent regarding their leaders exhibiting these characteristics (Douglas, 2012). Thus, it is likely that transformational leadership behaviors will be more valued by female employees and, in turn, will have a greater impact on them.

Gender differences in need satisfaction are typically not an issue in the SDT literature. However, Ambrose and Anderson-Butcher (2007) recently conducted a study explicitly investigating whether women and men differ in their intensity of need satisfaction. The results showed that female athletes felt more autonomous and related to compared to their male colleagues. These results are in line with Vallerand (1993), who showed that women feel more self-determined than men do over a range of activities (e.g., sports, education, interpersonal relationships). According to these results and my above reasoning, I propose:

*Hypothesis 3:* The effect of transformational leadership on followers' needs satisfaction is stronger for female employees than for male employees.

### **Leader Gender and Employee Gender Combined as a Moderator**

Much research attention has been paid to determinants of the effectiveness of leader–follower work pairs (Reuvers et al., 2008). For the present study, specific research focusing on demographic similarity between leaders and employees is of particular interest. According to Byrne's (1971) similarity–attraction paradigm, individuals like people who are similar to them more than they like people who are dissimilar to them. Similar people evoke positive responses in one another, resulting in the development of a positive relationship. For the

working context, the importance of positive relationships has been well documented in the leader–member exchange (LMX; Graen & Uhl-Bien, 1995) literature. According to the LMX theory, leaders develop a unique relationship with each employee of either high or low quality. In high-quality relationships, leader and follower greatly trust and respect one another. The follower receives greater support from the leader, who gives the follower more autonomy and responsibility. Low-quality relationships, in contrast, are more formal relations, e.g., they are characterized by exchange according to the employment contract. As demonstrated in a great number of studies, the higher the quality of the leader–follower relationship, the greater the followers’ commitment, job satisfaction, work involvement, and performance (e.g., Fisk & Friesen, 2012; Kuvaas, Buch, Dysvik, & Haerem, 2012; Le Blanc & González-Romá, 2012; Volmer, Spurk, & Niessen, 2012). As demonstrated by Green, Anderson, and Shivers (1996), LMX quality is perceived to be higher for same-gender dyads than for opposite-gender dyads, i.e., female leaders develop relationships of higher quality with female employees while male leaders develop relationships of higher quality with male employees.

This finding is in line with prior research which has identified gender similarity as an important determinant for similarity perception (e.g., Turban & Jones, 1988), which, according to Byrne (1971), influences the development of a relationship in a positive direction. In this vein, gender similarity between leaders and their employees was shown to be positively related to leader ratings of employee performance, liking, reduced role ambiguity and role conflict (Tsui & O’Reilly, 1989; Varma & Stroh, 2001). Furthermore, with respect to demographic similarity, gender similarity seems to be the strongest predictor of work-related outcomes (Tsui & O’Reilly, 1989).

Based on the aforementioned literature, I expect an effect of the leader–follower gender dyad on the relationship between transformational leadership and followers’ needs



satisfaction. Since relationship quality, frequency of interaction, and communication are higher in same-gender dyads (Selfhout, Denissen, Branje, & Meeus, 2009), leaders will know more about those employees who are the same gender. Accordingly, they will be able to take the needs of these employees more strongly into account than those of employees of the opposite gender. On the other hand, employees who receive more attention and support from their leaders will experience greater needs satisfaction. Thus, I propose:

*Hypothesis 4:* The effect of transformational leadership on followers' needs satisfaction is moderated by the leader–follower gender dyad, such that the effect will be stronger for the same-gender dyad.

## Method

### Participants and Procedure

In order to achieve a diverse sample, participants were recruited via the online portal of a Swiss daily newspaper and via several social networks. Participants were invited to take part in a study on leadership behavior effects. Data were collected in a single session over the internet using the survey tool Unipark. In total, 1291 individuals participated in the survey. Because of a survey tool failure (improper registration of participants' answers), 53 participants had to be excluded from the final data analysis. Another nine participants had to be excluded due to their not-credible answers, such as working 503 per cent per week, and two more participants had to be excluded because they did not have an identifiable direct supervisor. The final sample consisted of 1226 individuals (37% were female), with an average age of 34.28 years ( $SD = 11.23$ ). Concerning education, 43 per cent had obtained a general qualification for university entrance or a higher degree. The majority of participants (81%) had a full-time job. On average, the participants worked 40.38 ( $SD = 13.61$ ) hours per week. As indicated, participants worked in various branches. The most prominent fields were industry (18.9%), finances (17%) and information technology (16.7%). The majority of

participants (86.2%) indicated working with a male leader.

## Measures

**Transformational leadership.** Transformational leadership was assessed with the German version of Bass and Avolio's (1995) Multifactor Leadership Questionnaire (MLQ5X–Short; Felfe, 2006), comprising 19 items. The questionnaire asks subordinates to rate their supervisors on specific behaviors. Sample items are: “My supervisor spends time teaching and coaching me” and “My supervisor articulates a compelling vision of the future”. All items were rated on a five-point Likert type scale. Consistent with previous research (e.g., Bono & Judge, 2003; Walumbwa & Hartnell, 2011), I combined all items into the single factor of transformational leadership. Cronbach's alpha was .93, which indicates high reliability of the scale.

**Needs satisfaction.** Needs satisfaction was assessed with the Basic Needs Satisfaction in Relationship Scale (La Guardia, Ryan, Couchman, & Deci, 2000). The questionnaire was translated to German and then back-translated by two separate bilingual researchers. The comparison between the original and the back-translated versions supported the conceptual equivalence between the items.

The scale measures each need satisfaction with 3 items. In line with previous research on transformational leadership (Kovjanic et al., 2012), this scale was chosen due to the interest in the leader as the critical contextual factor for followers' needs satisfaction, rather than in the broader working context. Sample items are: “In the working relationship with my direct supervisor I feel like a competent person” (*competence*), “In the working relationship with my direct supervisor, I have a say in what happens and I can voice my opinion” (*autonomy*), and “In the working relationship with my direct supervisor, I often feel a large personal distance” (*relatedness*, reversely coded). All items were rated on a five-point Likert type scale. Cronbach's alpha for the competence scale was .85, .81 for the autonomy scale,

and .85 for the relatedness scale. All three scores indicate a good reliability.

**Gender.** Leader and employee gender were coded 0 for males and 1 for females in the correlational analysis. In the hierarchical regression analyses, when gender was assumed as a moderator, leader and employee gender were coded -1 for males and 1 for females. This kind of coding (i.e., unweighted effect coding) treats group means as equally important, regardless of the number of cases in the compared groups (Cohen, Cohen, West, & Aiken, 2003).

**Control variables.** Leaders' and participants' age, participants' workload and tenure with the current leader were included as control variables in the regression analyses. As previous studies have demonstrated, these variables may influence leader effectiveness and follower outcomes (e.g., Douglas, 2012; Walumbwa, Wang, Lawler, & Shi, 2004). Neglecting these variables when investigating the influence of transformational leadership behaviors on follower outcomes could potentially bias the results.

## Results

### Validity Analyses

A confirmatory factor analysis (CFA) was conducted to examine the measurement properties of the study's latent measures (i.e., transformational leadership and needs satisfaction). According to previous research (e.g., Bono & Judge, 2003), transformational leadership was indicated by its five subscales, and each need satisfaction by its three items. The results showed that the measurement model fits the data well ( $\chi^2 = 485.42$ ;  $df = 68$ ; TLI = .96; CFI = .97; RMSEA = .07). Further, all indicators significantly loaded on their intended latent factors (standardized loadings ranged from .68 to .94,  $p < .001$ ) and no cross-loadings were observed.

In the next step, the proposed four-factor model was tested against two theoretically plausible alternative models derived from theoretical considerations of the transformational leadership theory (Bass, 1985) and SDT's basic needs framework (Deci & Ryan, 2000): a) a

two-factor model combining all three need satisfaction scales into one factor, or b) an eight-factor model considering all five subscales of transformational leadership individually (i.e., not combined into a single factor). The chi-square difference test showed that the proposed four-factor model fitted the data significantly better than the two alternative models ( $\Delta\chi^2(5) = 923.84, p < .001, \Delta\chi^2(254) = 1684.95, p < .001$  respectively).

Finally, as recommended by Farrell (2010), each latent factor's *average variance extracted* (AVE; i.e., the average variance explained by the items composing each scale) was examined further in order to establish construct validity. According to Fornell and Larcker (1981), two criteria must be met to support validity: a) the AVE of a scale should exceed .50 to fulfill the convergent validity criterion and b) all squared correlations between scales should be lower than their AVEs to fulfill the divergent validity criterion. AVEs of the study variable varied from .65 to .70, indicating convergent validity. Further, all squared correlations between scales were lower than their AVEs, indicating divergent validity. Thus, the analyses indicated the validity of all study constructs.

### **Common Method Bias**

Following Pugh, Groth, and Hennig-Thurau (2011), the Harman's one-factor test was conducted to rule out the influence of single-source data. The Harman's one-factor test was chosen as this technique is the most commonly used for addressing common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The comparison between the solution of the one-factor Harman's test and the proposed four-factor model revealed that the single-factor model fitted the data significantly worse ( $\Delta\chi^2(6) = 1775.29, p < .001$ ). Thus, a single method-driven factor did not adequately represent the study's data, indicating that the study results were not affected by common method bias.

### **Descriptive Statistics**

Descriptive statistics and correlations for the study's variables are presented in Table

1. In initial support of Hypothesis 1, transformational leadership was significantly related to followers' needs satisfaction. Furthermore, leader and employee gender were significantly related to transformational leadership, indicating that female leaders were rated more transformational than male leaders, and that female employees rated their leaders as more transformational than male employees.

Table 2 provides means and standard deviations for study variables by leader and employee gender and gender composition. In accordance with the correlational analyses, the ANOVA revealed significant mean differences regarding transformational leadership between female and male leaders and between female and male employees ( $F(3, 1224) = 7.80, p < .01, \eta^2 = .01$ ;  $F(3, 1224) = 16.91, p < .001, \eta^2 = .01$  respectively). Female leaders were perceived as more transformational than male leaders, and female employees rated their supervisors as more transformational than male employees. Regarding needs satisfaction, with respect to employee gender, the ANOVA revealed significant mean differences for the autonomy and the relatedness need ( $F(3, 1224) = 12.99, p < .001, \eta^2 = .01$ ;  $F(3, 1224) = 7.37, p < .01, \eta^2 = .01$  respectively). Compared to male employees, female employees reported greater satisfaction of both the need for autonomy and the need for relatedness. No gender differences were found with respect to leader gender, indicating that male and female leaders were similarly effective in supporting employees' feelings of competence, autonomy, and relatedness.

Regarding gender compositions, all ANOVAs were significant except for competence need satisfaction ( $F(3, 1222) = .70, p = .55, \eta^2 = .00$ ): transformational leadership  $F(3, 1222) = 8.40, p < .001, \eta^2 = .02$ ; autonomy need satisfaction  $F(3, 1222) = 5.37, p < .01, \eta^2 = .01$ ; relatedness need satisfaction  $F(3, 1222) = 6.06, p < .001, \eta^2 = .02$ . To explore which gender compositions differed significantly, the least-significant difference (LSD) multiple comparison tests were used as recommended by Saville (1990). The LSD tests indicated that

female employees were more sensitive to leaders' gender than the males, since all the differences found involved female employees. Firstly, female employees working with a female leader perceived their leaders as the most transformational, and they reported the greatest autonomy and relatedness needs satisfaction. Secondly, female employees working with a male leader perceived more transformational leadership and reported greater autonomy need satisfaction when compared with male employees working with a male leader. Finally, female employees working with a male leader reported greater autonomy and relatedness needs satisfaction compared to male employees working with a female leader. None of the mean comparisons involving only male employees were significant, indicating similar responses among male employees regardless of leader gender.

### **Hypotheses Testing**

In order to test Hypotheses 1 to 4, each need satisfaction was regressed on the predictor variables (i.e., transformational leadership, leaders and employee gender) in a complete three-way moderated regression model (Aiken & West, 1991). In the first step, the control variables (leader and subordinate age, tenure, and workload) were entered into the equation; in the second step the centered transformational leadership scores and the effect coded leader and employee gender; in the third step all three two-way interactions; in the fourth step the three-way interaction. The second step tests Hypothesis 1, the third steps test Hypotheses 2 and 3, and the fourth step tests Hypothesis 4. Table 3 presents the estimated coefficients. The results concerning each hypothesis may be interpreted thusly:

**Hypothesis 1.** In full support of Hypothesis 1, transformational leadership significantly predicted employees' satisfaction of all three needs (see Table 3, Step 2). The strongest effect was observed for relatedness satisfaction ( $\beta = .78, p < .001$ ), followed by the effects for autonomy ( $\beta = .67, p < .001$ ) and for competence satisfaction ( $\beta = .50, p < .001$ ).

**Hypothesis 2.** Hypothesis 2 was not supported (see Table 3, Step 3). For the satisfaction of all three needs, the interaction term between transformational leadership and leader gender was not significant. These results indicate that leader gender did not have any effect on the relationship between transformational leadership and follower need satisfaction. However, the main effect of leader gender on competence and autonomy satisfaction was significant ( $\beta = -.06, p < .05$  and  $\beta = -.05, p < .05$ , respectively; see Table 3, Step 2). Accordingly, when transformational leadership was controlled for, employees working with a male leader reported feeling more competent and more autonomous than employees working with a female leader.

**Hypothesis 3.** Hypothesis 3 was not supported (see Table 3, Step 3). Similarly to leader gender, employee gender did not have any effect on the relationship between transformational leadership and employee need satisfaction. For the satisfaction of all three needs, the interaction term was not significant:  $\beta = .03, p = .30$  for competence satisfaction;  $\beta = .00, p = .86$  for autonomy satisfaction;  $\beta = -.10, p = .68$  for relatedness satisfaction. Further, no direct effect of employee gender was observed.

**Hypothesis 4.** The results did not support Hypothesis 4 (see Table 4, Step 4). All three need satisfaction scores were unaffected by the three-way interaction between transformational leadership, leader and employee gender. These results indicate that leader and employee gender composition had no effect on the relationship between transformational leadership and followers' needs satisfaction. However, the interaction effect of leader and employee gender was significant regarding the satisfaction of the need for relatedness ( $\beta = .07, p < .01$ ; see Table 3, Step 3). Although not of primary interest in the study, the interaction was plotted for further interpretation of the effect. As can be seen in Figure 1, when transformational leadership was controlled for, female employees who worked with a female leader reported the highest satisfaction of the need for relatedness, and female

employees who worked for a male leader reported the lowest relatedness satisfaction. The simple slope analysis revealed that the regression line is significantly positive ( $b = .33, p < .001$ ). In contrast, the slope of the regression line for male employees was not significant ( $b = .04, p = .25$ ). Accordingly, relatedness satisfaction of male employees did not differ as a function of leader gender.

## Discussion

The aim of the present study was to investigate the moderating effects of leader and employee gender, both individually and in combination, on the relationship between transformational leadership and employee need satisfaction. In doing so, the study addresses requests made by Ayman and Korabik (2010) and by Douglas (2012) calling for more research on leadership and gender, in an attempt to increase the understanding of their interplay and the consequences they have on employee outcomes. One such outcome addressed in the present study was employees' needs satisfaction, because although hypothesized as being a crucial factor for transformational leadership effectiveness (Bass, 1985) employees' needs satisfaction is still widely overlooked in the leadership research.

The study tested four hypotheses. First, by integrating transformational leadership theory (Bass, 1985) and SDT's basic needs framework (Deci & Ryan, 2000) I hypothesized a positive relationship between transformational leadership behavior and employees' satisfaction of the needs for competence, autonomy, and relatedness. Second, drawing on gender stereotype research in general and on the role congruity theory (Eagly & Karau, 2002) in particular, I hypothesized that male transformational leaders will have a stronger impact on employees' needs satisfaction than female transformational leaders. Third, drawing on implicit leadership theory (Lord & Maher, 1991) and research on gender differences in values and need satisfaction, I hypothesized that female employees will profit more strongly from a transformational leader than male employees. Finally, drawing on the similarity–attraction



paradigm (Byrne, 1971) and the LMX theory (Graen & Uhl-Bien, 1995) I hypothesized that transformational leadership behaviors will have the greatest impact on employees' needs satisfaction in same-gender dyads. While the data fully supported the first hypothesis, replicating prior research on transformational leadership and employees' needs satisfaction (e.g., Hetland et al., 2011, Kovjanic et al. 2012), none of the hypotheses relating to interactions between transformational leadership and leader and follower gender were supported. These results are in contrast to prior research, which has demonstrated that the relationship between transformational leadership and leader effectiveness is moderated by leader gender (Douglas, 2012; Reuvers et al., 2008), employee gender (Douglas, 2012), and gender composition of the leader–follower dyad (Ayman et al., 2009; Douglas, 2012). I offer two possible explanations regarding the inconsistent results between the present and prior studies. First, while prior studies were predominantly conducted in a male typed working context, the present sample was diverse, i.e., it comprised employees from male as well as from female typed working contexts. Overall, it appears that transformational leadership does not particularly favor women or men. However, differences may then occur when leader gender and the gender typing of the context are incongruent. Further research should shed more light on this issue. Second, while the outcome variable in prior studies was leader performance, I investigated employee needs satisfaction. It seems that leader and follower gender interact with leader behaviors regarding leader evaluations but not regarding employees' psychological states such as need satisfaction. I believe that this is an interesting finding which should be investigated further. Thus, I encourage future researchers to combine these measures as well as objective leader and employee performance measures in order to draw more sophisticated conclusions regarding which outcomes are affected by the interplay between transformational leadership and leader and employee gender.

The regression analyses yielded two additional findings. First, leader gender had a

main effect on employees' needs satisfaction, such that employees working with a male leader reported feeling more competent and autonomous than employees working with a female leader. Since men possess more social status and power than women do in most settings (Ridgeway, 2001), and since men are seen as being more agentic, it is possible that they evoke stronger feelings of competence and autonomy in their subordinates than their female counterparts. Second, leader–follower gender composition had a main effect on relatedness satisfaction, such that female employees reported feeling most related to when working with a female leader, while no difference was observed for male employees. This finding is in line with studies demonstrating that relationships are of greater importance to women (e.g., Gilligan, 1979).

I believe that, in order to accurately interpret this study's results, a closer look must also be taken at the mean differences regarding transformational leadership and needs satisfaction, with respect to leader and employee gender. Under examination, the leader's gender made a significant difference regarding transformational leadership such that women were perceived as more often displaying transformational behaviors than men. This finding is in line with Eagly et al.'s (2003) meta-analysis, which demonstrated that women are perceived as more transformational when compared to their male counterparts. In contrast to the regression analyses, mean differences did not reveal any differences between female and male leaders regarding employees' needs. This finding highlights that transformational leadership (which was not controlled for in the ANOVA) could be a viable approach for women to overcome obstacles they face in leader roles due to their gender.

Considering employee gender, female and male employees differed significantly in transformational leadership perception and in needs satisfaction. Female employees perceived their leaders as being more transformational than male employees did. This result is contrary to previous studies, which did not show any difference for employee gender (e.g., Ayman et

al., 2009; Carless, 1998). In contrast to these studies, the present sample was considerably larger, providing the statistical analyses with more power, in turn enabling the analysis to detect even small differences between groups. Indeed, the difference found for leader perception between female and male employees must be seen as small ( $\eta^2$  which is smaller than .06 represents a small effect; Cohen, 1988). However, as demonstrated by Martell, Lane, and Emrich (1996), small differences are not negligible. In contrast, when repeated over time and individuals, they can produce large consequences.

The present data also revealed small but significant differences between female and male employees regarding autonomy and relatedness need satisfaction. Women reported stronger satisfaction of both needs. These results parallel Ambrose and Anderson-Butcher's (2007) findings. In their study, female athletes also felt both greater autonomy and relatedness satisfaction compared to their male counterparts. Considering prior research, which has demonstrated that women perceive greater support from persons of authority (e.g., coaches, teachers; Ambrose & Anderson-Butcher, 2007; Vallerand, Fortier, & Guay, 1997) and the present results indicating that female employees perceive greater transformational leadership (which may be seen as a supportive leadership style), it is not surprising that females would report a greater need satisfaction. As hypothesized in the SDT (Deci & Ryan, 2000), need satisfaction depends on the individual's social context (e.g., leaders), which provides or denies opportunities for needs fulfillment. The results of the regression analyses further support this reasoning. These showed that, when transformational leadership was controlled for (e.g., perceived support), gender differences disappear.

Regarding the reason why men and women differed in their perceptions of support and their needs satisfaction, I see the following possibilities. First, as Vallerand et al. (1997) proposed, persons of authority may indeed treat female and male subordinates differently, e.g., by being more dominant with males and more communal with females. Second, since

women possess less social status and power than men do in most settings (Ridgeway, 2001), they may be more open to leader influence—resulting in a greater identification with the leader (Eckloff & Van Quaquebeke, 2008), which, in turn, enables a greater need satisfaction while working with the leader (Sheldon, Turban, Brown, Barrick, & Judge, 2003). Gender differences in social status may also explain why the present data did not show a difference between female and male employees in competence need satisfaction. Compared to women, men feel more competent overall (Ridgeway, 2001). This difference may disappear when women perceive strong support from their leaders to engage in decision making, speak up, and prove themselves with challenging tasks (e.g., when they perceive strong transformational leadership).

Regarding gender composition, the results parallel the findings reported above. Female employees working with a female leader perceived their leaders as the most transformational and reported the greatest feelings of autonomy and relatedness. In contrast, male employees working with a female leader reported the lowest scores on these three variables. However, male employees working with a female leader did not differ from male employees working with a male leader, either in transformational leadership perception or in needs satisfaction. These results rather support the hypothesis that women have a preference for same-gender leader–follower relationships (Rudman & Goodwin, 2004) than the hypothesis that males devalue female leaders (Ayman et al., 2009). I believe that this is an important difference, and I encourage future researchers to shed more light on this issue.

### **Limitations and Strengths**

The present study is not free of limitations. The cross-sectional and self-reported data may have resulted in common method variance. However, as the result of the Harman's one-factor test (Podsakoff et al., 2003) suggests a single method-driven factor does not adequately represent the data. Moreover, interaction term effects, which were of interest to this study,

would not be affected by such a bias (Evans, 1985). Further, I only investigated leader and employee gender as potential moderators. I encourage future researchers to extend the present study to other possible moderators, such as need strength, autonomous causality orientation or task characteristics. A strength of the present study is its large sample covering various branches of industry, allowing the results of the study to not be limited to a specific working context. However, the sample may be also a limitation, since gender effects could be a matter of congruence or incongruence between the gender type of the working context and leader gender. A further strength of the present study is the method of data collection. Since I recruited the participants directly via diverse online portals (e.g., no H&R or leaders were involved), participation in the study was absolutely voluntary and anonymous. Thus, I believe that the data do not suffer from any social desirability bias.

### **Implications**

Considering both the regression results as well as the mean differences results, I see a leader–gender picture that looks as follows: First, female employees perceive more transformational leadership and thus experience a greater need satisfaction than their male counterparts. Further research should explore the cause of these differences, e.g., to what extent leaders treat female and male employees differently, and how much is in “the eye of the beholder”. Second, and of greater importance for the present research, male leaders seem to be more effective in providing opportunities for need satisfaction, such that their employees feel more competent and autonomous. However, this was only the case when transformational leadership was controlled for. Thus, in contrast to prior research (e.g., Ayman et al., 2009), my conclusion is that transformational leadership does not favor males. In contrast, transformational leadership seems to be a leadership style that enables male as well as female leaders to be effective and create an environment in which their employees are able to satisfy their basic human needs and thus, as prior research has demonstrated, be more

satisfied with the job and show greater performance (e.g., Baard et al., 2004; Koyjanic et al., 2012). Following these results, I can only encourage organizations to implement trainings which will enhance their leaders' transformational leadership behaviors.

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Table 1

*Means, Standard Deviations, and Zero-Order Correlations*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
1. Employee Age	34.28	11.23									
2. Employee Gender <sup>a</sup>	-	-	-.16								
3. Work Load	40.38	13.61	-.04	-.17							
4. Tenure	3.06	3.67	.25	-.04	.01						
5. Leader Age	45.41	8.61	.19	-.01	-.02	.27					
6. Leader Gender <sup>a</sup>	-	-	-.08	.23.7 <sup>b</sup>	-.15	-.10	-.01				
7. TFL	3.02	.92	-.14	.12	-.06	-.05	-.05	.08			
8. Competence	3.73	.97	.08	.00	-.07	.05	.03	-.03	.47		
9. Autonomy	3.45	1.23	-.05	.10	-.11	.00	-.02	.03	.66	.68	
10. Relatedness	3.03	1.09	.09	.08	-.04	.02	.01	.03	.77	.58	.75

*Note.* TFL = transformational leadership.

<sup>a</sup>0 = male, 1 = female; <sup>b</sup>The Person chi-square test was used to analyze the relationships between leader and subordinate gender. The relationship was significant,  $p < .001$ .

All correlations above .05 were significant,  $p < .05$ .

Table 2

*Mean and Standard Deviations of Key Variables by Leader and Employee Gender and Gender Composition*

Variable	Leader Gender		Employee Gender		Gender composition (Leader/Employee)			
	Female	Male	Female	Male	F/F	F/M	M/M	M/F
TFL	3.20 <sup>**</sup> (.97)	2.99 (.91)	3.16 <sup>***</sup> (.94)	2.96 (.90)	3.40 <sup>a</sup> (.91)	2.97 <sup>bc</sup> (.99)	2.93 <sup>b</sup> (.89)	3.10 <sup>c</sup> (.93)
Competence	3.65 (.97)	3.74 (.96)	3.73 (1.01)	3.73 (.94)	3.71 <sup>a</sup> (.97)	3.59 <sup>a</sup> (.98)	3.75 <sup>a</sup> (.93)	3.73 <sup>a</sup> (1.03)
Autonomy	3.48 (1.10)	3.45 (1.13)	3.45 <sup>***</sup> (1.13)	3.36 (1.13)	3.72 <sup>a</sup> (1.02)	3.20 <sup>b</sup> (1.13)	3.38 <sup>b</sup> (1.13)	3.57 <sup>a</sup> (1.13)
Relatedness	3.12 (1.09)	3.02 (1.08)	3.03 <sup>**</sup> (1.09)	2.97 (1.08)	3.42 <sup>a</sup> (1.10)	2.76 <sup>b</sup> (1.13)	2.99 <sup>bc</sup> (1.07)	3.07 <sup>c</sup> (1.09)

*Note.* TFL = transformational leadership; F = female, M = male.

Different superscripts within a row indicate a statistically significant difference in means. Standard deviations are in the brackets.

<sup>\*\*</sup>  $p < .01$ ; <sup>\*\*\*</sup>  $p < .001$ .

Table 3

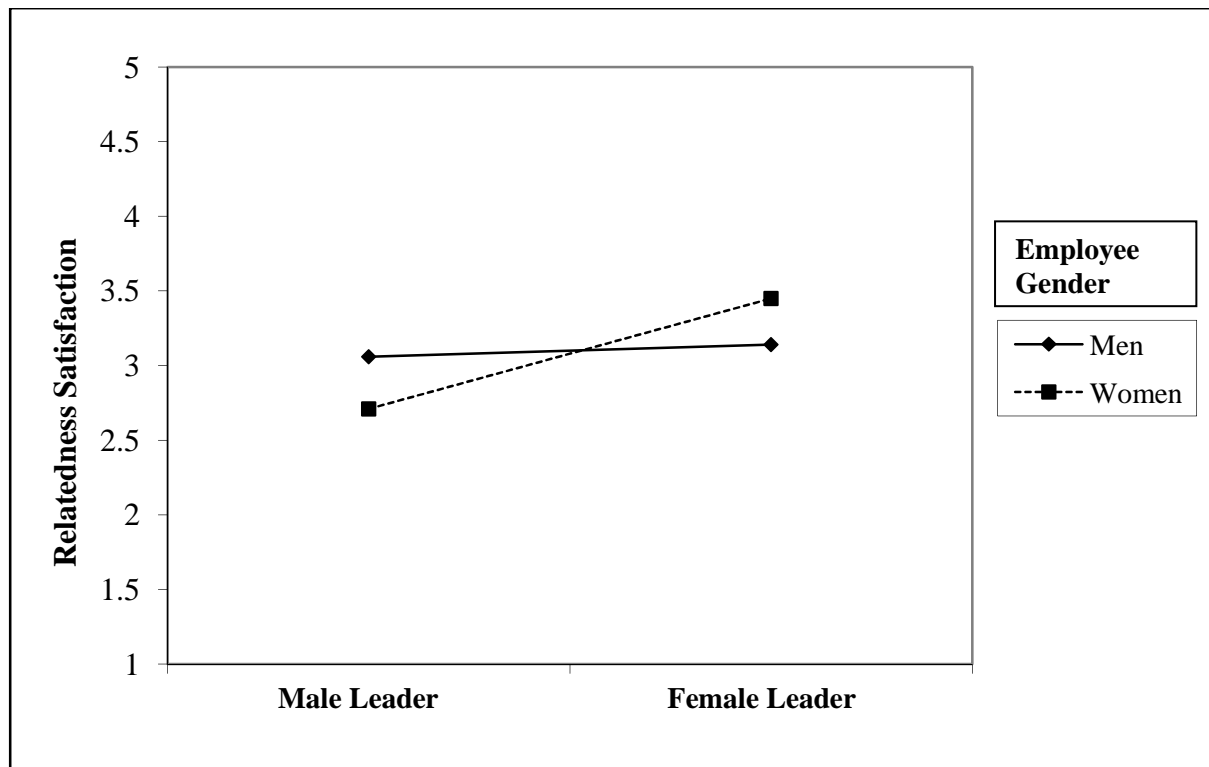
*Moderated Multiple Regression Analyses of Effects of Transformational Leadership and Gender Composition on Employees' Needs Satisfaction*

	Dependent Measures					
	Competence		Autonomy		Relatedness	
	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$
<b>Step 1</b>		.01**		.01**		.01**
Leader Age	.01		-.02		.02	
Employee Age	.08**		-.05		-.11**	
Tenure	.03		.02		.04	
Work Load	-.06*		-.11***		-.04	
<b>Step 2</b>		.24***		.44***		.59***
TFL	.50***		.67***		.79***	
Leader Gender <sup>a</sup>	-.08*		-.05*		-.02	
Employee Gender <sup>a</sup>	-.04		.03		-.01	
<b>Step 3</b>		.00		.00		.01*
TFL x Leader Gender	.01		-.02		.02	
TFL x Employee Gender	.03		.00		-.01	
Leader Gender x Employee Gender	.00		.02		.07**	
<b>Step 4</b>		.00		.00		.00
TFL x Leader Gender x Employee Gender	.00		.01		-.01	

Note. TFL = transformational leadership.

<sup>a</sup> -1 = male, 1 = female.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .



*Figure 1.* Interaction effect of leader and employee gender on employee relatedness satisfaction

## General Discussion

The aim of the thesis was to more closely investigate the relationship between employees' needs and transformational leadership, i.e., what role employees' needs play in the transformational leadership process, and whether contextual variables impact their relationship. For this purpose, four studies (organized into three chapters) were conducted. Drawing on self-determination theory (SDT; Deci & Ryan, 2000), the first three studies were mainly concerned with employees' needs satisfaction (i.e., satisfaction of the needs for autonomy, competence, and relatedness) as the underlying mechanism of transformational leadership, while the fourth study was devoted to leader and employee gender as potential moderators of the relationship between transformational leadership and employees' needs. In the following section, I will first provide a summary of the studies' core findings, before outlining the general strengths and limitations of this research. Finally, I will close the chapter by elaborating on the theoretical and practical implications of the conducted research and by providing possible directions for future research.

## Overview of the Core Findings and Contributions

*Chapter 1* initiated with an investigation into whether transformational leaders influence employees' needs satisfaction and whether employees' needs satisfaction mediates the relationship between transformational leadership and employees' outcomes, i.e., job satisfaction, occupational self-efficacy beliefs, and affective commitment to the leader. The hypotheses were tested in Germany using a cross-sectional design (Study 1;  $N = 410$ ) and in Switzerland using a lagged design (Study 2;  $N = 442$ ).

The results were largely identical across both studies. In support of the assumptions, both studies' results revealed a strong relationship between transformational leadership and employees' satisfaction of all three basic needs (i.e., autonomy, competence, and relatedness). Further, as hypothesized, the results revealed that transformational leadership

influenced employees' work-related outcomes through the fulfillment of employees' needs, and that needs had additive as well as differential effects on different job related outcomes. First, the relationship between transformational leadership and employee job satisfaction was mediated by employee satisfaction of the need for autonomy (Study 1 and Study 2), competence (Study 2), and relatedness (Study 2). The planned pairwise contrasts showed that all three needs were of equal importance, highlighting their unique, additive mediating effects. Second, the relationship between transformational leadership and employee occupational self-efficacy beliefs was mediated only by the satisfaction of the need for competence (in both studies). Finally, the relationship between transformational leadership and employee affective commitment to the leader was mediated only by the satisfaction of the need for relatedness (in both studies). The last two findings indicated differential needs effects.

Overall, the results provided a strong support for Burns' (1978) and Bass' (1985) theorizing on the importance of employee needs for the effectiveness of transformational leaders. Further, they shed first light on *which* needs transformational leaders address helping to understand the universal nature of transformational leadership (Bass, 1997) and its positive effect on various work outcomes across cultures (Jung, Yammarino, & Lee, 2009).

In *Chapter 2*, the findings reported in *Chapter 1* were extended in three important ways. First, the role of employees' need satisfaction as a possible mediating mechanism for objective performance (i.e., direct indicators of leadership effectiveness) was investigated. Second, it was tested whether there are causal links between transformational leadership, employees' needs satisfaction, and work-related outcomes. Third, the theoretical model from *Chapter 1* was extended following advice by Walumbwa and Hartnell (2011), who criticized that most studies on transformational leadership processes have largely neglected the possibility of sequential mediation. Building on self-determination literature, work

engagement—a key indicator of intrinsic motivation in the workplace (Salanova & Schaufeli, 2008)—was examined as a second, sequential mediator of the relationship between transformational leadership and followers' performance. In particular, it was hypothesized that transformational leadership would influence followers' performance through their needs satisfaction and, in turn, their work engagement. Followers' performance was operationalized as quantity of ideas, quality of ideas, and persistence in a brainstorming task. The hypothesized model was tested in an experimental study ( $N = 190$ ), allowing an examination of the proposed causality.

Overall, the results largely supported the hypotheses. As predicted, results revealed that transformational leadership induced satisfaction of the needs for competence, relatedness, and autonomy, with the former two subsequently predicting followers' work engagement. Work engagement, in turn, led to greater performance quality and greater task persistence. Two findings were contrary to the assumptions. First, transformational leadership did not have a positive effect on performance quantity. Second, autonomy need satisfaction did not mediate the influence of transformational leadership on work engagement and, in turn, performance. However, both findings were observed in prior research using a similar study design (e.g., Jung & Avolio, 2000; Kirkpatrick & Locke, 1996; Sheldon & Filak, 2008).

In sum, results indicated that need satisfaction is caused by transformational leadership, and that employees' needs and work engagement mediate the link between transformational leadership and employee objective performance in sequence.

*Chapter 3* investigated whether leader and employee gender and the gender composition of the leader–follower dyad interact with transformational leadership behaviors regarding employees' needs satisfaction. First, building on gender stereotype research in general and on the role congruity theory (Eagly & Karau, 2002) in particular, I hypothesized

that male transformational leaders would have a stronger impact on employee needs satisfaction than female transformational leaders. Second, building on implicit leadership theory (Lord & Maher, 1991) and research on gender differences in values and need satisfaction, I hypothesized that female employees who work with a transformational leader would feel more competent, autonomous, and related to compared to their male counterparts. Finally, following the similarity–attraction paradigm (Byrne, 1971) and LMX theory (Graen & Uhl-Bien, 1995) I hypothesized that transformational leadership behaviors would have the greatest impact on employee needs satisfaction in same-gender dyads.

Results did not support any of the proposed interactions. Due to the large sample size ( $N = 1226$ ), statistical power problems can be regarded as less probable. Although no interaction effects were found, results revealed a few interesting findings that allow some conclusions to be drawn on the relevance of transformational leadership regarding gender and need satisfaction.

First, moderated multiple regression analyses showed a direct effect of leader gender on employee need satisfaction. Hence, when transformational leadership was controlled for, employees working with a male leader reported feeling more competent and more autonomous than employees working with a female leader. This result is in line with previous research, which has demonstrated that men are more effective in the leader role than women (e.g., Douglas, 2012; Heilman & Chen, 2005). The results showed no direct effect of employee gender, indicating that women and men do not differ in their extent of need satisfaction.

However, results on mean differences showed an opposite picture. When effects of transformational leadership on employee need satisfaction were not controlled for, no differences between female and male leaders were found regarding employees' need satisfaction. Instead, there were some differences between female and male employees.



Compared to men, women reported greater satisfaction of the need for autonomy and the need for relatedness. Further, female employees rated their supervisors as more transformational than male employees.

In sum, the findings indicate that female employees tend to perceive more transformational leadership, thus experiencing greater need satisfaction than their male counterparts. Further, male leaders seem to be more effective in providing opportunities for need satisfaction, such that their employees feel more competent and autonomous. However, this was only the case when transformational leadership was controlled for. Accordingly, when women display transformational leadership, the disadvantage due to their gender seems to disappear. Overall, on the basis of the study's results, it may be concluded that a transformational leadership style enables male as well as female leaders to be effective and create an environment in which their employees are able to satisfy their needs.

### **General Strengths and Limitations of the Conducted Research**

The present thesis integrated transformational leadership (Bass, 1985; Burns, 1978) and self-determination theory (SDT; Deci & Ryan, 2000)—two of the most powerful theories in their respective fields. In doing so, transformational leadership was linked to an established theoretical framework of human motivation rather than generating yet more individual mediator variables, as has been the trend in recent research (for a review and critique on individual mediators see Judge, Woolf, Hurst, & Livingstone, 2006). Moreover, this thesis investigated a key assumption of transformational leadership theory, that is, that employees' needs are a crucial factor regarding transformational leadership effectiveness. Hence, the thesis provides a substantial advancement of knowledge, enhancing our understanding of the mechanisms behind transformational leadership.

Further, the various methods applied in the thesis should be highlighted. The methods employed ranged from a cross-sectional design and lagged design, which allowed a temporal

separation between the measurement of transformational leadership perceptions and the measurement of employee outcomes and, thus, a reduction of potential common method bias, to an experimental design, which allowed a manipulation of transformational leadership and an establishment of causal links between transformational behaviors, need satisfaction, and work-related outcomes. Furthermore, experimental research and field studies complement each other optimally: the weakness of one method (internal validity of field studies, mutual realism of experimental studies) is compensated by the strength of the other approach (Dipboye, 1990).

A further strength of the thesis is the use of two separate leadership effectiveness measures. I used both proxies of leadership effectiveness (e.g., employee job satisfaction) and direct measures, such as employee performance. Leadership effectiveness was thus measured both subjectively and objectively, allowing testing whether need satisfaction applies as an underlying mechanism to both criteria.

Further, the thesis went beyond simple mediation models by investigating distal mediation process as well (see *Chapter 2*). Moreover, after establishing strong evidence that employees' need satisfaction functions as an underlying mechanism of transformational leadership, the thesis took a further step and investigated whether contextual factors affect the transformational leadership–employee need satisfaction relationship.

Finally, it should be mentioned that this thesis provides strong evidence regarding the external validity of findings (e.g., Stone-Romero, 2007). First, the investigated samples were relatively large and heterogeneous comprising individuals from a wide range of organizational settings, such as industry, services, health care, education, finances, and information technology (*Chapter 1* and *3*). Further, the initial mediation model was tested in two different countries (*Chapter 1*). Even though Germany and Switzerland may at first sight appear very similar, cross-cultural comparisons (e.g., House, Hanges, Javidan, Dorfman, &

Gupta, 2004) have shown differences on central cultural dimensions. Compared to Germany, Switzerland generally scores higher on the dimensions power distance, humane orientation, and collectivism. Each of these dimensions is associated with interpersonal relationships and is thus of great importance for leadership, since leadership is by its very nature a relationship between leader and follower (Graen & Uhl-Bien, 1995). The results were largely identical for both countries, providing further support regarding the generalizability of the findings.

Some limitations are however associated with the conducted research. First, all studies conducted in the field (*Chapter 1* and *3*) were cross-sectional in nature and only utilized a single source (i.e., the employee) to obtain the desired information. As outlined by Podsakoff, MacKenzie, Lee, and Podsakoff (2003), data collected in this way may suffer from common method bias, which may lead to inflated relationships between variables and faulty inferences. However, the analytical procedures that were applied to determine the influence of common method bias (CFA marker variable technique as recommended by Williams, Hartman, and Cavazotte [2010] and Harman's one factor test as recommended by Podsakoff et al. [2003]) consistently suggested that common source variance did not affect the correlations between the variables. Next, the lagged design revealed identical magnitudes regarding the effect sizes of transformational leadership perceptions, further strengthening the confidence in the findings. One could argue that, instead of statistically controlling for common method bias, a multi-source approach should have been applied to overcome the hazard of inflated relationships. However, since the present research focused on the leader–follower relationship the multi-source approach seemed less appropriate. As demonstrated in previous research, leaders form unique one-to-one interpersonal relationships with their subordinates (e.g., Linden, Wayne, & Stilwell, 1993; Yammarino, Dubinsky, Comer, & Jolson, 1997). Accordingly, obtaining leader perception, need satisfaction, and work-related attitudes from different sources may fudge the relationships between the variables more

seriously than using a single source. Finally, as Harris and Daniels (2001) showed, it is more important to assess employee appraisals than the “objective” work environment, since appraisals more strongly impact employee outcomes.

Another limitation resulting from cross-sectional data is the inability to draw cause-effect conclusions. However, the existing theoretical and empirical literature on transformational leadership and SDT provides a solid account for the proposed causal direction. Furthermore, the experimental data parallels the findings from studies conducted in the field, providing further support that transformational leadership is a cause of employee need satisfaction that, in turn, impacts employee work-related attitudes and performance.

Limitations specific to each conducted study have been discussed in the respective chapters and are not addressed again here.

### **Implications for Research and Practice**

Although this thesis was able to answer some of the major questions regarding transformational leadership and employee need satisfaction, there are still a number of open questions that should be addressed in future research.

Firstly, future research should examine the effect of transformational leadership on employees’ need satisfaction against the background of other factors. As recent work suggests, different aspects of the person-environment fit may play an important role for need satisfaction (Greguras & Diefendorff, 2009). Disentangling the effects of different organizational factors may provide valuable insights into their relative importance for need fulfillment.

In a similar vein, future research should investigate the interaction effects between leadership and work environment, since both are potential sources of (or threats to) need satisfaction. Previous research on transformational leadership suggests that job characteristics (e.g., task demands) can neutralize the relationship between transformational leadership and

such employee outcomes as commitment and self-efficacy (e.g., Felfe & Schyns, 2002; Whittington, Goodwin, & Murray, 2004), and that internal and external organizational contexts (e.g., climate) can influence the impact that leadership has on employee outcomes positively as well as negatively (e.g., Felfe & Schyns, 2002). Hence, future research should address whether different work settings (e.g., work on an assembly belt vs. work in an R&D team) enhance or hinder transformational leadership effects on employee need satisfaction, as well as whether work settings abundant with need supporting opportunities (e.g., interesting and challenging tasks, supportive colleagues; Ryan & Deci, 2008) can buffer the negative effects that leadership styles such as transactional leadership have on employee need fulfillment (e.g., Hetland, Hetland, Andreassen, Pallesen, & Notelaers, 2011).

Further, future research should pay more attention to each need individually. In line with SDT's proposition that the satisfaction of one need is likely to go "hand in hand" with the fulfillment of the other two needs, previous research usually combined all three needs into one score (Gagné & Deci, 2005). However, it is a key assumption of SDT that the fulfillment of each of the three needs has *unique, additive* effects (Ryan & Deci, 2008). As demonstrated by the thesis, a separate consideration of each specific need would allow for a more precise definition of the unique effects on (employee) outcomes of each need individually. Consequently testing for these effects for each specific need would thus provide valuable insights concerning the further development of SDT.

Another important issue that should be addressed in future research involves the followers' characteristics. As suggested by the thesis, women seem to perceive more transformational leadership than men, and, as a consequence, experience greater need satisfaction. However, the interaction term between transformational leadership and employee gender was not significant. More research is needed to clarify these findings, especially as to what extent leaders treat female and male employees differently, and how

much may be in “the eye of the beholder”. As suggested by prior research, women and men are similarly affected by the characteristics of their job, but not by their leaders (Lambert, 1991). Hence, it may be that leaders are more important for women than for men when it comes to intrinsic motivation.

Another followers’ characteristic that should be addressed in future is *causality orientation*. Causality orientation refers to an individual’s general or global motivational orientation (Ryan & Deci, 2008). SDT specifies three orientations: the autonomy orientation (i.e., tendency to interpret the social context as supportive and to be self-regulating), the controlled orientation (i.e., tendency to look for cues and control in the environment and let those regulate the behavior), and impersonal orientation (e.g., tendency to feel no control over outcomes and thus a lack of motivation). As Baard, Deci, and Ryan (2004) suggested, causality orientation may be an important individual factor regarding need satisfaction. Investigating need support and personality, they found that autonomy orientation was positively related to employees’ need fulfillment. With respect to leadership research, it would be beneficial to examine whether leadership styles and the causality orientation of followers interact, such that followers with a less beneficial causality orientation (e.g., impersonal orientation) might profit more strongly from supportive leadership styles like transformational leadership. For example, Gardner and Avolio (1998) assumed that followers suffering from low self-esteem (which is associated with causality orientation; Baard et al. 2004) and psychological distress tend to be more receptive to the influence of transformational leaders.

In addition, the thesis bears several implications for praxis. First of all, as the findings of the present research indicate, job satisfaction, self-efficacy, commitment to the leader, work engagement, and employee performance will be enhanced when basic psychological needs are satisfied. Further, they suggest that transformational leadership may be a central

method of positively addressing employees' needs. Moreover, they indicate that both female and male employees profit equally from transformational leadership, and that leaders who display transformational leadership behaviors effectively affect employees' need satisfaction regardless of their own gender.

Organizations should implement leadership trainings that will help leaders to develop transformational leadership behaviors. Indeed, past research has indicated that transformational leadership can be learned (Barling, Weber, & Kelloway, 1996; Dvir, Eden, Avolio, & Shamir, 2002; Frese, Beimeel, & Schoenborn, 2003). Since the thesis notably increased our understanding of how transformational leadership “works”, it provides valuable input for the development of such leadership trainings. As demonstrated, addressing all three basic needs is an important issue for leadership effectiveness. Past research has indicated the effectiveness of leadership development programs that targeted at understanding and fulfilling employees' needs. For instance, in a longitudinal field experiment, Deci, Connell, and Ryan (1989) found that training programs teaching leaders to provide guidance in a non-controlling way enhanced their ability to fulfill employees' need for autonomy. This, in turn, translated into increased job satisfaction among employees. However, as Stone, Deci, and Ryan (2009) noticed “supporting employees' workplace autonomy, competence, and relationship building are surprisingly resisted, perhaps partly because learning the skills needed for an SDT approach often challenges managers' long-held beliefs about human motivation” (p. 88). I hope that the present findings will help convince organizations and leaders that being a transformational leader and involving employees' needs for autonomy, competence, and relatedness is highly beneficial for all involved—the employees, the leaders, and the organization itself.

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